

HOSPITAL COST CONTAINMENT
IN MASSACHUSETTS

by

CAROL LEE CARTER

A.B., Clark University (1977)
M.C.P., Massachusetts Institute of Technology (1979)

SUBMITTED TO THE DEPARTMENT OF
URBAN STUDIES AND PLANNING
IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE DEGREE OF

DOCTOR OF PHILOSOPHY

at the

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

September 5, 1986

© MASSACHUSETTS INSTITUTE OF TECHNOLOGY 1986

Signature of Author _____
Department of Urban
Studies and Planning

Certified By _____
Lawrence Bacow
Thesis Supervisor

Accepted By _____
Langley Keyes
Chairman, Ph.D. Committee

Rotch
MASSACHUSETTS INSTITUTE
OF TECHNOLOGY

JUL 9 1986

LIBRARIES

TABLE OF CONTENTS

List of Figures and Tables	3
Acknowledgements	6
Chapter 1 Introduction	7
Chapter 2 Explaining Increases in Hospital Costs	13
Chapter 3 Cost Containment Programs in Massachusetts	74
Chapter 4 The Results of the Law	139
Chapter 5 The Policy Making Process: Amendments to Chapter 372	235
Chapter 6 Conclusions	285
Appendix A Volume Adjustment Calculation	335
Appendix B Hospitals Included in the Studies	337
Appendix C Methodological Note on Data Sources and Data Verification	339
Appendix D T Test Results	349
Appendix E Correlation Results	358

List of Figures and Tables

Table 2.1	Aggregate and Per Capita Amounts and Percent Distribution of Expenditures for Hospital Care, By Source of Funds, Selected Calendar Years 1950-84	16
Table 2.2	Aggregate and Per Capita Amounts and Percent Distribution for Health Care, By Source of Funds Selected Calendar Years, 1929-84	18
Figure 2.3	The Nation's Health Care Dollar, 1984	19
Figure 2.4	Hospital Expenditures in Actual and Constant Dollars	20
Figure 2.5	Percent Increase in Hospital Expenditures, in Constant Dollars, 1965-82	21
Figure 2.6	Costs Per Admission in Constant Dollars, 1972-84	24
Figure 2.7	Short Term Hospitals Offering Specialized Services, Selected Years, 1972-1984	36
Figure 2.8	Effect of Prospective Payment Systems on Expenses Per Capita and Per Adjusted Patient Day (1970-78)	63
Table 3.1	Massachusetts and National Health Care and Hospital Per Capita Expenditures for Selected Years, 1973-85	76
Figure 3.2	National and Massachusetts Per Capita Expenditures, Selected Years, 1964-86	78
Table 3.3	Comparison of Hospital Expenses Per Adjusted Admission and Patient Day, By City, 1980	80
Figure 3.4	Comparison of Possible Incentives Under Cost-Based Reimbursement and Chapter 372	99
Figure 3.5	Development of a Hospital's Allowable Costs and Total Revenue Cap Under Chapter 372	100
Figure 3.6	Corridors and Marginal Cost Pricing Applied to Inpatient Routine Care	110
Table 3.7	Volume Incentives Under Chapter 372	111
Table 3.8	Winners and Losers Under Chapter 372	132

List of Figures and Tables, continued

Table 3.9	Comparison of Desirable Features of a Payment System and Provisions of Chapter 372	137
Figure 4.1	Total Costs in Constant Dollars, 1979-85	148
Figure 4.2	Total MA Capital Costs in Constant Dollars and as a Percent of Total Hospital Costs 1979-85	149
Table 4.3	Increases in Total Costs, Costs Per Capita, Costs Per Discharge, and Costs Per Day in Constant Dollars, 1979-85	153
Figure 4.4	Comparison of Changes in Total Costs in Massachusetts, Northeast, and U.S., Constant Dollars, 1979-85	162
Figure 4.5	Comparison of Changes in Costs Per Admission in Massachusetts, Northeast, and U.S., Constant Dollars, 1979-85	163
Figure 4.6	Comparison of Changes in Costs Per Day in Massachusetts, Northeast, and U.S., Constant Dollars, 1979-85	164
Figure 4.7	Comparison of Changes in Costs Per Capita, Massachusetts, Northeast, and U.S., Constant Dollars, 1979-85	165
Figure 4.8	Admissions in Massachusetts, Northeast, and U.S. Per 1000 Population, 1979-85	171
Figure 4.9	Patient Days in Massachusetts, Northeast, and U.S. Per 1000 Population, 1979-85	172
Figure 4.10	Average Length of Stay in Massachusetts, Northeast, and U.S., 1979-85	173
Figure 4.11	Massachusetts Total Costs, Inpatient Costs, and Inpatient Routine Costs, Constant Dollars, 1979-85	178
Figure 4.12	Day Surgery Minutes in Massachusetts, 1981-84	181
Figure 4.13	Massachusetts Outpatient Costs, Broken Down into Routine and Ancillary Costs, Constant Dollars, 1979-85	183
Figure 4.14	Massachusetts Total Ancillary Costs, Broken Down into Inpatient and Outpatient Costs, Constant Dollars, 1979-85	188

List of Figures and Tables, continued

Figure 4.15	Changes in U.S. Total Costs, Massachusetts Costs, and MA Basis of Payment 1980-84	197
Table 4.16	Massachusetts Basis of Payment Components, 1981-85	200
Figure 4.17	Massachusetts Dollar Increases in Profits, Constant Dollars, 1979-85	205
Table 4.18	MA Profits as a Percent of Total Revenues, 1979-85	206
Table 4.19	MA Profits as a Percent of Total Revenues, Excluding Non-operating Revenues, 1981-85	208
Table 4.20	Comparison of Teaching and Non-teaching Hospitals for Average Length of Stay, Costs Per Day, and Costs Per Discharge, 1979-85	220
Table 5.1	Summary of Problems Identified in Chapter 372 and the Blue Cross Contract (HA-29) and Corrections Made	244
Table 5.2	Changes in Case Mix Adjusted Discharges and Their Effect on Costs, 1985-87	272
Table 6.1	Comparison of Incentives Under Chapter 372 and Diagnosis Related Group- Based Payments	309

ACKNOWLEDGEMENTS

This project has been a long time in the making and as such there are a number of people that I would like to acknowledge here. First, Larry Bacow, my thesis supervisor, was very helpful in framing the questions of general interest on regulatory policy. His support and warmth were greatly appreciated. Deborah Stone provided a marvelous dose of healthy cynacism and humor in commenting on the political aspects of this thesis. Jeff Harris greatly improved the methodological sections of the thesis and, as such, made the conclusions stonger than they otherwise would have been. Each brought to my project their own perspective, I learned from them all, and I thank them for their time during a busy summer for everyone.

I also want to thank the Whitaker College Health Sciences Fund, which provided me with two years of support. Without this financial support I am sure that I would not have finished. Stan Finkelstein and Kathy Eisenhaure were very generous in providing me with office space and computer resources.

The staff at the Rate Setting Commisssion were extremely helpful to me and I can not begin to thank everyone who helped me. I hope that they know that I am very grateful to them. Most importantly, I would like to express my deep gratitude to Paul Swoboda, who never tired of my questions and was consistently supportive of this project. His friendship and colleagueship made many dark moments pass. Dave Veroff and Jonathan Axon also helped to make my time at the Commission both more pleasurable and more fruitful. Last, I would like to thank John Chapman, whose quiet support made my stay at the Commission possible.

I benefitted from numerous conversations Jim Maxwell, Dan Dunn, and Mark Schlesinger. I thank them for their comments on earlier drafts of various chapters. In addition, I want to thank Lois Olinger for being there whenever I needed her. I hope to repay the favor when she sits down to write her thesis. My twin sister, Mary, provided me with the perspective I so often lacked. She often inspired me to get finished and to move on in life. And, last, but in my heart first, I want to thank Charlie Glaser for being loving, supportive, and helpful. He helped me to win this very personal struggle.

Chapter 1

Introduction

In recent years hospital costs have been increasing at twice the general inflation rate. With the enactment of Medicare and Medicaid, government expenditures have increased substantially, along with growing concerns that these public dollars be spent prudently. Similarly, employers, and in turn their insurers, have been alarmed at the costs of health insurance premiums. As the costs of government programs and businesses' employee benefits have escalated, concern has turned to effective ways to curtail spiralling hospital inflation.

In October 1982, the Massachusetts legislature enacted Chapter 372, a payment system that attempts to control the exceptionally high hospital costs in this state. The payment system incorporated the features considered to be necessary for effective control while at the same time addressed other important goals. These goals included: increased access to care for uninsured and the under-insured

populations, continued availability of technologically sophisticated services, increased equity between payers, and preservation of an adequate reserve capacity in the hospital system. Essentially, the law places all acute hospitals on budget based systems of payment and caps their payments at prospectively determined levels. Because hospitals can retain any cost savings, hospitals are encouraged to reduce utilization and improve efficiency.

This thesis evaluates the initial results of Chapter 372. It assesses the law's likely effects on reducing the rates of increase in hospital costs by comparing pre-C.372 rates of change with post-C.372. In addition, broader comparisons are done to regional and national data to see if the law appeared to have any effects beyond national trends in declining utilization and reduced rates of increase. We will see that while the law looks effective in controlling Massachusetts rates of increase when compared to the trends prior to the law, these conclusions have to be tempered by the results of national comparisons. Interestingly, when compared to regional norms, including a variety of heavily regulated states, the law appeared effective at reducing the rates of increase below this peer group.

Beyond answering the basic question of whether or not the law appeared successful in reducing hospital inflation,

the specific mechanics of the law are evaluated. For example, if the law controlled costs but none of the specific incentives appeared to work, it would suggest that the refinements built into the law do not matter-- that in fact the important component of the law was its budgeted prospectivity, not its refined incentives. On the other hand, if the incentives appear to work, then we will have learned that careful design of a law pays off in terms of efficacy.

Further, patterns of hospital responses are examined to see if the industry had a uniform response or whether certain types of hospitals (categorized by size and teaching status) responded differently to the cost containment initiative. This analysis suggests that indeed hospitals did respond differently but that no one group outperformed the others in controlling costs. Finally, several myths about hospital behavior are explored, revealing little evidence for many of the anticipated reactions of hospitals. Examining the provisions of the law that worked provides insight into hospital behavior under regulation.

In addition, the thesis also discusses the political and institutional limits of attempts to regulate hospital cost increases. By describing the evolution of rate setting programs in Massachusetts, we will see that the agenda and

policy solutions have been circumscribed by powerful interests of the hospital industry and the insurers. Amendments have focused on improving the equity between hospitals (invariably resulting in increased payouts) and reducing the opportunities for cost shifting between payers. Amendments to improve the ability of the law to control costs increases have met with mixed review. To be sure, several changes have reduced the overly generous nature of the original law. However, the hospital industry has thus far avoided most meaningful attempts to control critical sources of real cost increases-- those that might threaten the hospitals' ability to attract physicians, patients, and revenues.

The thesis is organized as follows. Chapter Two provides background to the problem of hospital inflation. Three very different sources of inflation are discussed--increases in general inflation, increases in the population or its access to services (translating into increased demand), and increasing intensity of services (meaning prices have increased because the product has constantly been upgraded). Each has very different implications for public policy so it is important to identify which source(s) should be the target for corrective policies. The chapter also discusses three major programs

implemented to control costs. None of these programs was overly successful but each offers lessons on designing more effective programs.

Chapter Three describes Massachusetts rate setting efforts to control hospital costs. Starting in the mid-seventies, Massachusetts has had a patchwork of regulatory programs targeted at some of the most expensive hospital services in the country. The precursors to Chapter 372 are summarized, providing hints of the key elements to a more successful program. Chapter 372 is described in some detail, revealing the mismatch between the regulatory intent of the law and the sources of real hospital inflation.

The results of the various studies analyzing the effects of the law are presented in Chapter Four. The analyses focus on answering three questions: (1) did the law appear to reduce the rate of increase in hospital costs?, (2) if so, how?, and (3) did the industry have a uniform response to the law? Other analyses examine some unintended effects of the law, including its impact on hospitals' financial health.

Because the law has undergone numerous changes since 1982, Chapter Five outlines these amendments to the law. These amendments are classified into the three general objectives: to improve the law's ability to control costs,

to increase equity between hospitals, and to increase equity between payers. These changes highlight the hospitals' ability to avoid regulation of important sources of hospital inflation and the difficulty of implementing more restrictive policies once laws are enacted.

Finally, the last chapter summarizes the findings about the ability of the law to control costs and the reactions of the hospitals to this regulatory program, and draws some conclusions about the policy making process for rate setting. In addition, the national DRG-based payment system and the results of the New Jersey all payer DRG system are discussed, providing an interesting comparison of two regulatory solutions to the intractable problem of rising hospital costs. Both cases reveal the changing physician-administrator relationship, with physicians being increasingly integrated into resource allocation decision-making and subjected medical practice patterns to review. Last, the chapter outlines future issues for regulatory programs, including payments for physician services and capital, the relative roles of competition and regulation, and the social goals that can be met by regulatory solutions.

Chapter 2

Explaining Hospital Cost Increases

2.1 Introduction

Hospital expenditures in current dollars have increased from \$9.1 billion in 1960 to almost \$158 billion in 1984, with increases for the past five years averaging 14.9 percent. Despite federal and state programs implemented in part to curb hospital cost increases, expenditures continue to increase at a growth rate which far exceeds that of the general inflation. Why?

This chapter discusses several components of increased hospital costs, including increases in hospital wages, changes in the nature of the hospital 'product', and the expansion of insurance coverage. Each source is reviewed, allowing some conclusions about their implications for the targets of hospital cost containment programs. Next, the effects of two major cost containment programs are described, revealing the need, particularly in high costs

states such as Massachusetts, to enact more effective cost containment programs. The strengths and weaknesses of these cost containment programs are also described, offering hints about the design of new programs. The purpose of this analysis is to provide the reader with a basis for evaluating the design of Chapter 372. Identifying the sources of hospital cost increases also highlights the likely the targets of a cost containment law. And an analysis of the ineffective features of other cost containment programs provides insight into the design of successful programs.

2.2 Hospital Cost Increases

Before discussing the sources of hospital cost increases, it is useful to present some background on the dollars and payers involved in the financing of hospital care. Hospitals' patient care revenues come from a variety of sources that can be broadly categorized as direct private payments (patients paying for services out of pocket) and

1. Hospitals also receive revenues for non-patient care services from philanthropy, government research grants, foundations, and from income from non-patient service areas, for example, the cafeteria and the parking lot.

third party reimbursement.[1] Third parties include both private insurance companies and public programs. The role of government in paying for hospital care has risen considerably since the enactment of Medicare and Medicaid (1965). The adoption of these public programs changed expenditures for hospital care significantly, as depicted in Table 2.1. There has been a considerable shift away from patient direct payments (that is, patients paying out of pocket), and to a much lesser extent, away from private health insurance, towards government sources. In 1965, the government paid 39% of all hospital expenditures. By 1975, this proportion had risen to 55%. The 1980s have seen a slight shift away from government outlays for hospital care as the federal government attempts to reduce its deficit, and state and local governments trim back their expenditures to match dwindling federal dollars. In 1984, hospital funds came from the following sources: 8.7% from direct patient payments and 91% from third parties, including 53% from government sources and 37% from private insurance.

In the past twenty-two years health care costs have risen sharply--from almost \$13 billion in 1950 to over \$322 billion in 1982, representing over ten percent of the Gross

Table 2.1 Aggregate and Per Capita Distribution of Expenditures For Hospital Care, By Source of Funds, Selected Calendar Years 1950-84

Year	Total	Direct patient payments	Third parties			Government		
			All third parties	Private health insurance	Other private funds	Total	Federal	State and local
Amount in billions								
1950	\$3.9	\$1.2	\$2.7	\$.7	\$.1	\$1.9	(¹)	(¹)
1955	5.9	1.3	4.6	1.7	.2	2.7	(¹)	(¹)
1960	9.1	1.8	7.3	3.3	.2	3.8	(¹)	(¹)
1965	14.0	2.3	11.6	5.7	.3	5.6	\$2.4	\$3.1
1967	18.4	1.9	16.4	6.2	.3	10.0	6.3	3.7
1970	28.0	3.2	24.8	9.7	.4	14.7	9.5	5.1
1975	52.4	4.2	48.2	18.8	.6	28.9	20.1	8.8
1980	101.3	7.5	93.8	38.6	1.0	54.2	41.1	13.1
1981	117.9	9.2	108.7	44.7	1.3	62.8	48.6	14.1
1982	134.7	10.3	124.4	51.8	1.4	71.2	55.4	15.8
1983	148.8	12.8	136.1	56.6	1.6	77.8	60.6	17.2
1984	157.9	13.7	144.2	58.2	1.6	84.3	65.6	18.7
Per capita amount								
1950	25	7	17	4	1	12	(¹)	(¹)
1955	35	8	27	10	1	16	(¹)	(¹)
1960	49	10	40	18	1	20	(¹)	(¹)
1965	69	12	57	28	2	27	12	16
1967	89	9	79	30	1	48	30	18
1970	131	15	116	45	2	68	45	24
1975	233	19	215	84	3	129	90	39
1980	429	32	398	163	4	230	174	56
1981	495	38	456	188	5	263	204	59
1982	560	43	517	215	6	296	230	66
1983	612	53	560	233	6	320	249	71
1984	644	56	588	237	7	344	268	76
Percent distribution								
1950	100.0	29.9	70.1	17.7	3.5	48.9	(¹)	(¹)
1955	100.0	22.3	77.7	28.5	3.0	46.2	(¹)	(¹)
1960	100.0	19.8	80.2	36.3	2.5	41.3	(¹)	(¹)
1965	100.0	16.8	83.2	41.1	2.2	39.9	17.4	22.5
1967	100.0	10.6	89.4	33.5	1.6	54.3	34.2	20.1
1970	100.0	11.4	88.6	34.6	1.6	52.4	34.1	18.4
1975	100.0	7.9	92.1	35.9	1.1	55.1	38.4	16.7
1980	100.0	7.4	92.6	38.1	1.0	53.5	40.6	13.0
1981	100.0	7.8	92.2	37.9	1.1	53.2	41.3	12.0
1982	100.0	7.6	92.4	38.5	1.0	52.8	41.1	11.7
1983	100.0	8.6	91.4	38.1	1.1	52.3	40.7	11.6
1984	100.0	8.7	91.3	36.9	1.0	53.4	41.6	11.9

¹ Separate data are not available.

NOTE: Based on July 1 social security area population estimates.

Source: Katherine R. Levitt, et al, "National Health Expenditures, 1984," Health Care Financing Review/ Fall 1985/ Vol.7, No.1.

National Product.[2] During this period, hospital expenditures have steadily increased both in absolute terms (dollars spent) and as a proportion of total health care expenditures spent on hospital services. Table 2.2 outlines these trends in spending. Figure 2.3 depicts revenue sources and spending for the nation's health care in 1984. By 1984, \$157.9 billion was being spent on hospital services, taking 41 cents of every health care dollar. Even adjusting for inflation, hospital expenditures have continued to escalate at rates that warrant close examination. Figure 2.4 illustrates percentage increases in hospital expenditures between 1965 and 1982.

The trends depicted in Figures 2.4 and 2.5 are explained by many factors that influence hospital inflation. First, general inflation accounts for a large proportion of the total increases which will be discussed shortly. Second, even after controlling for inflation, there are large and quite variable percentage increases in hospital costs (Figure 2.5.) The data indicate the importance of political and economic policy on the rates of increase. The relatively high percentage increases between

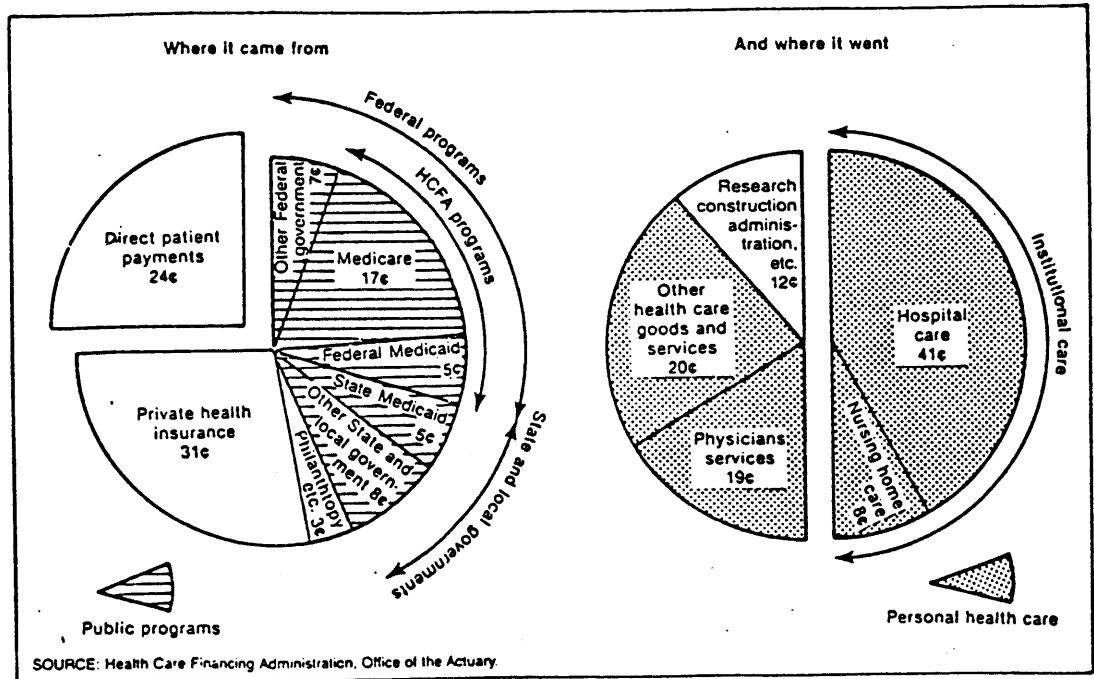
2. Robert M. Gibson, et al, "National Health expenditures, 1982", Health Care Financing Review, Fall 1983, Vol.5, No.1, Tables 1 and 2.

Table 2.2 Aggregate and Per Capita Amounts and Percent Distribution of Expenditures for Health Care, By Source of Funds 1929- 84

Year	Total	Direct patient payments	Third parties			Government		
			All third parties	Private health insurance	Other private funds	Total	Federal	State and local
Amount in billions								
1929	\$3.2	\$2.8	\$.4	(¹)	\$.1	\$.3	\$.1	\$.2
1935	2.7	2.2	.5	(¹)	.1	.4	.1	.3
1940	3.5	2.9	.7	(¹)	.1	.6	.1	.4
1950	10.9	7.1	3.8	\$.9	.3	2.4	1.1	1.3
1955	15.7	9.1	6.6	2.5	.4	3.6	1.6	2.0
1960	23.7	13.0	10.7	5.0	.5	5.2	2.2	3.0
1965	35.9	18.5	17.3	8.7	.8	7.9	3.6	4.3
1967	44.5	19.0	25.5	9.6	.8	15.1	9.5	5.6
1970	65.4	26.5	38.9	15.3	1.1	22.4	14.5	7.9
1975	117.1	38.1	79.0	31.2	1.6	46.3	31.4	14.9
1980	219.1	62.5	156.7	67.3	2.6	86.7	62.5	24.3
1981	253.4	70.8	182.6	78.8	3.0	100.8	74.2	26.5
1982	284.9	77.2	207.7	91.0	3.4	113.4	83.9	29.5
1983	315.2	86.4	228.8	100.3	3.7	124.8	92.9	31.9
1984	341.8	95.4	246.5	107.2	3.9	135.4	101.1	34.3
Per capita amount								
1929	26	23	3	(¹)	1	2	1	2
1935	21	17	4	(¹)	1	3	1	2
1940	26	21	5	(¹)	1	4	1	3
1950	70	46	24	6	2	16	7	8
1955	93	54	39	15	3	21	10	12
1960	129	71	58	27	3	28	12	16
1965	177	91	85	43	4	39	18	21
1967	214	91	123	46	4	73	46	27
1970	305	124	182	72	5	105	68	37
1975	522	170	352	139	7	206	140	66
1980	929	265	664	285	11	368	265	103
1981	1,063	297	766	331	13	423	311	111
1982	1,184	321	863	378	14	471	349	122
1983	1,297	355	941	413	15	514	382	131
1984	1,394	389	1,005	437	16	552	412	140
Percent distribution								
1929	100.0	88.4	11.6	(¹)	2.6	9.0	2.7	6.3
1935	100.0	82.4	17.6	(¹)	2.8	14.7	3.4	11.3
1940	100.0	81.3	18.7	(¹)	2.6	16.1	4.1	12.0
1950	100.0	65.5	34.5	9.1	2.9	22.4	10.4	12.0
1955	100.0	58.1	41.9	16.1	2.8	23.0	10.5	12.5
1960	100.0	54.9	45.1	21.1	2.3	21.8	9.3	12.5
1965	100.0	51.6	48.4	24.2	2.2	22.0	10.1	11.9
1967	100.0	42.6	57.4	21.6	1.9	33.9	21.3	12.6
1970	100.0	40.5	59.5	23.4	1.7	34.3	22.2	12.1
1975	100.0	32.5	67.5	26.7	1.3	39.5	26.8	12.7
1980	100.0	28.5	71.5	30.7	1.2	39.6	28.5	11.1
1981	100.0	27.9	72.1	31.1	1.2	39.8	29.3	10.5
1982	100.0	27.1	72.9	31.9	1.2	39.8	29.5	10.3
1983	100.0	27.4	72.6	31.8	1.2	39.6	29.5	10.1
1984	100.0	27.9	72.1	31.3	1.2	39.6	29.6	10.0

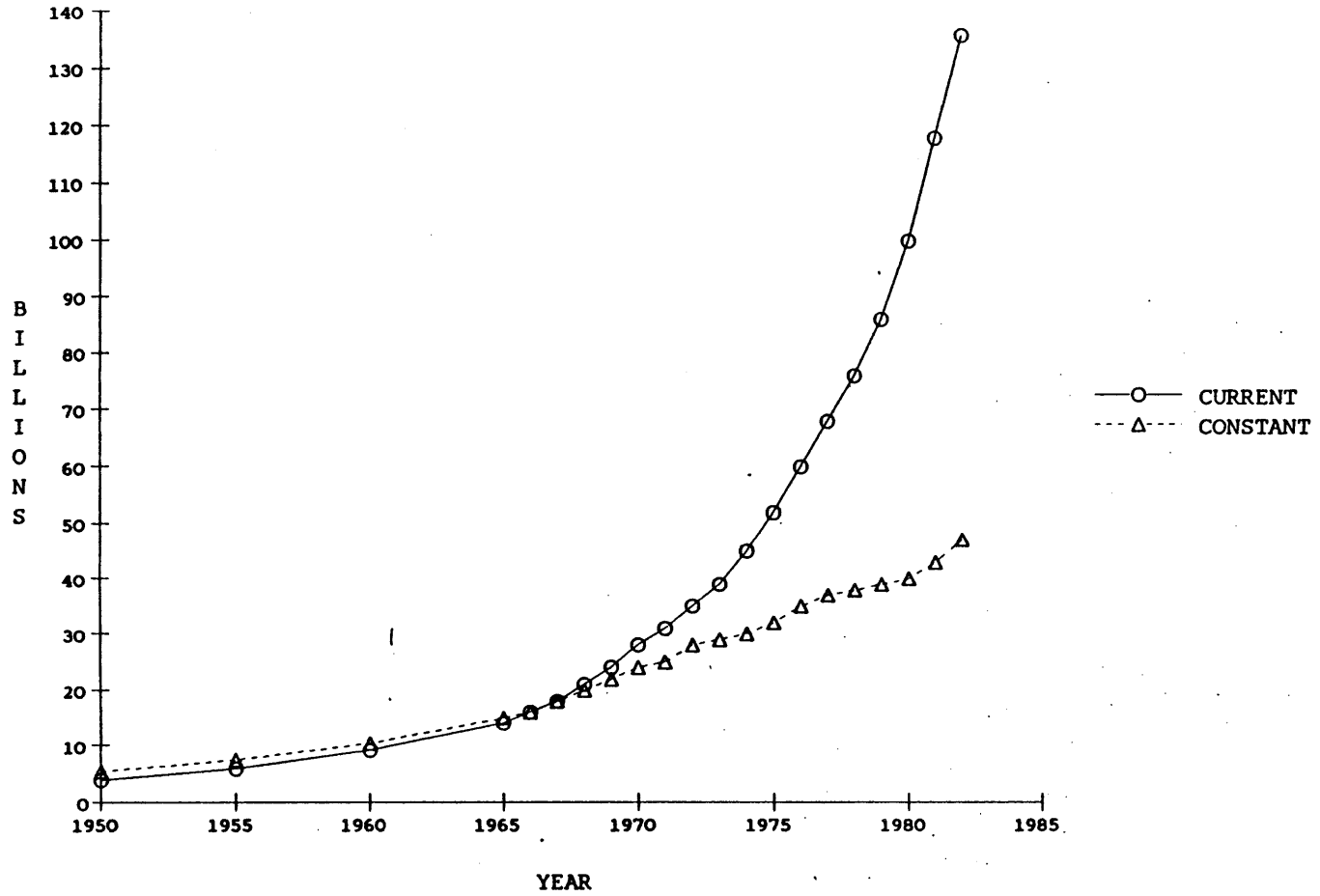
Source: Katherine R. Levitt, et al, "National Health Expenditures, 1984", Health Care Financing Review/ Fall 1985/ Vol.7, No.1.

Figure 2.3 The Nation's Health Care
Dollar - 1984



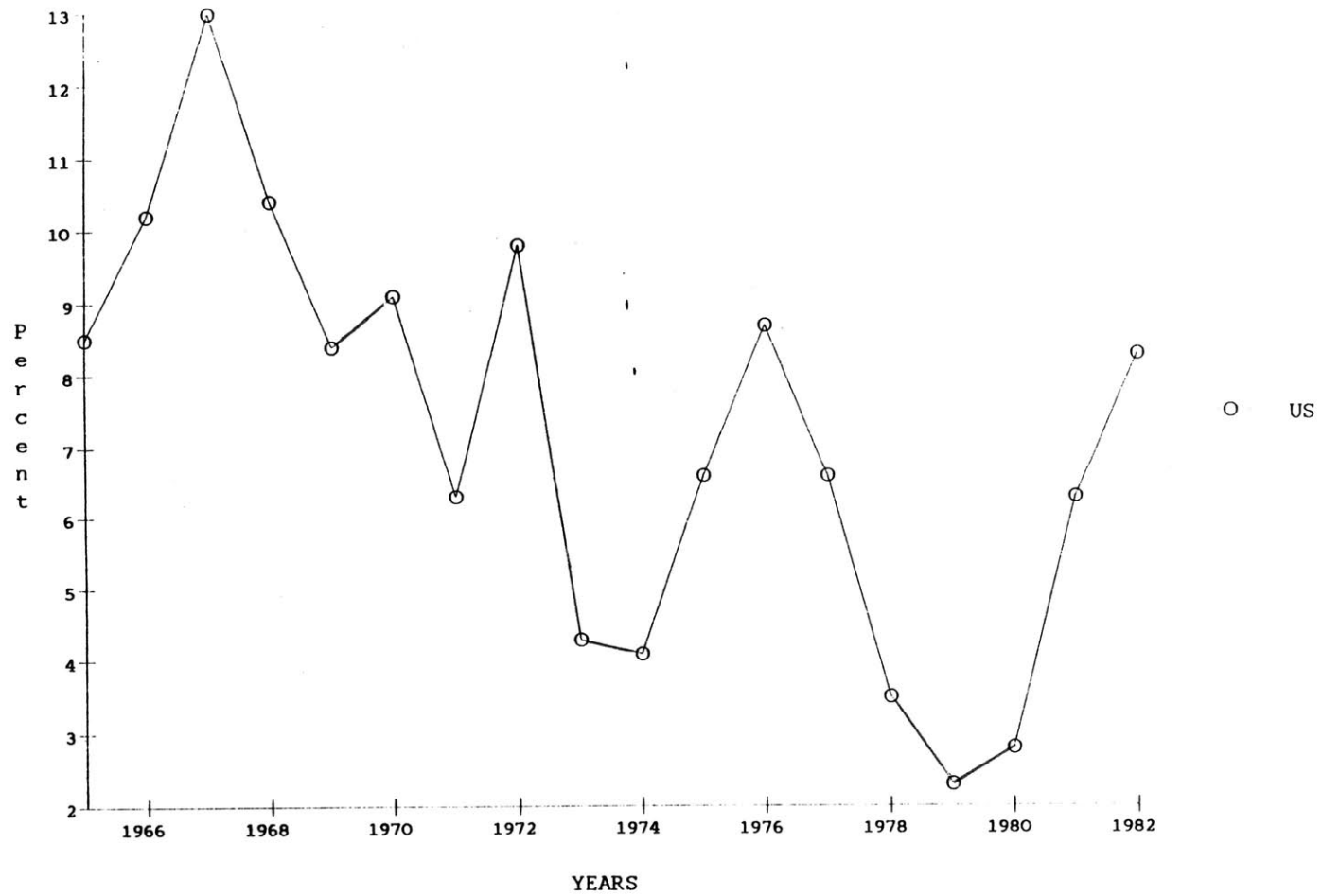
Source: Katherine R. Levitt, et al, "National Health Expenditures, 1984," Health Care Financing Review /Fall 1985/ Vol. 7, No.1.

Figure 2.4 Hospital Expenditures in Actual and Constant Dollars 1950-82



Source: AHA, Hospital Statistics 1985, Table 1.

Figure 2.5 Percent Increase in U.S. Hospital Expenditures
in Constant Dollars, 1965-82



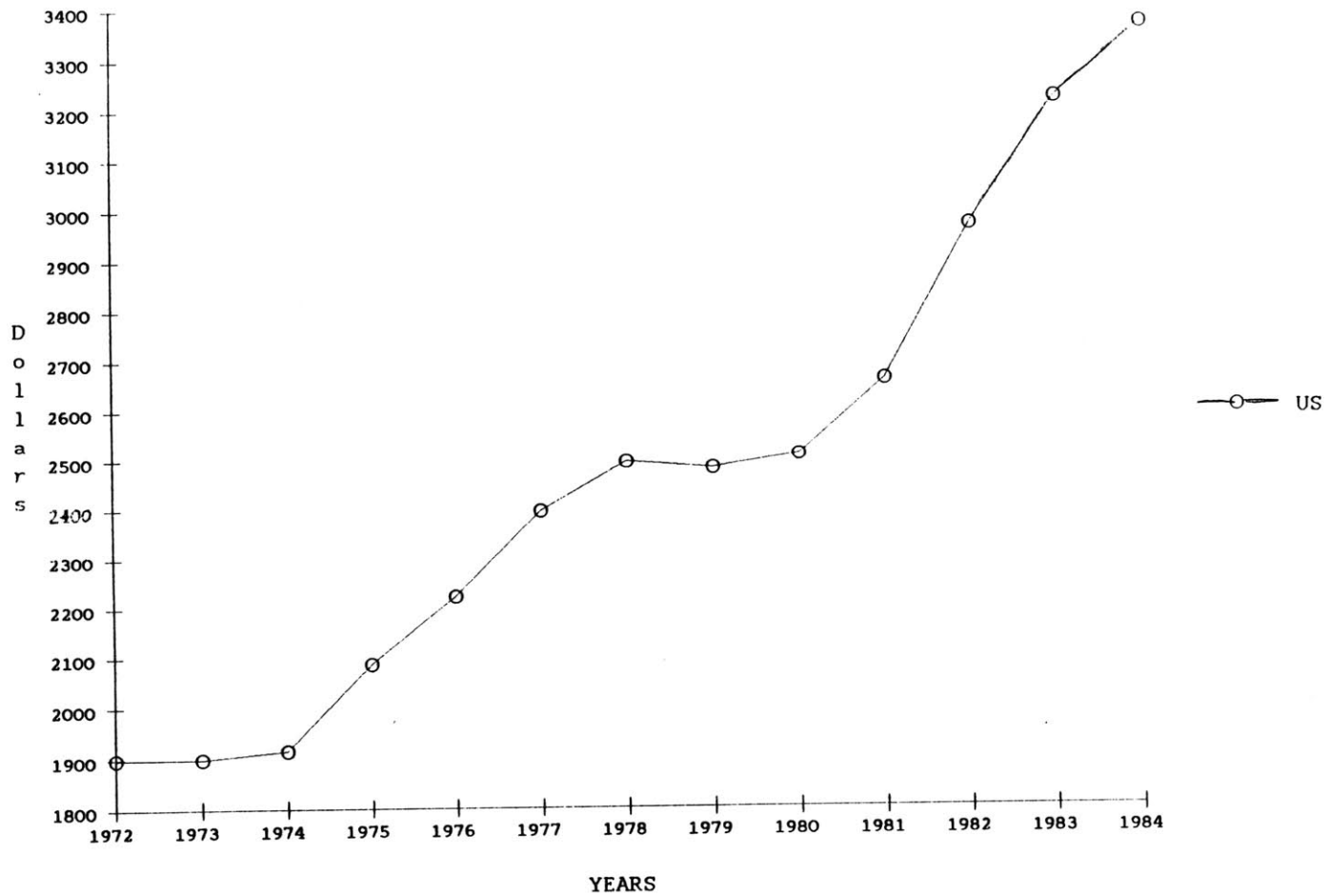
1950-65 can be explained by the increasing presence of private insurance plans and the growing importance of the hospital as a locus of medical care. The largest single jump in spending occurred in the years just after the passage of Medicare and Medicaid (1966-1968). These increases began to slow down as government programs reached their target populations and initial access no longer fueled these unprecedented rates of growth. In the early seventies the rates of increase dropped, except in 1972, due to Nixon's Economic Stabilization Program (1971-74.) The sharp increase in 1972 may be attributable to the failure of Phase I and II (wage and price controls) to limit increases in volume and intensity of services. These serious omissions were somewhat corrected in subsequent phases of the program, and hence, the return of relatively low increases in real expenditures. In 1974, the controls were lifted, and between 1975 and 1977 the rates increased again. This ended with the implementation of the Voluntary Effort by the hospital industry in 1977. These efforts to forestall regulation of hospital costs were successful in reducing rates of increase until 1980, when Reagan took office. With the threat of regulation gone, hospital costs began to escalate again.

Political considerations aside, the increase in

hospital costs has three basic economic causes: the general rise in the prices of inputs, changes in the nature of the hospital 'product', and increases in the quantity of services demanded. These sources of hospital cost increases reflect very different underlying phenomena with very different policy prescriptions. For example, the high rates of increase in costs of the late sixties are due in large part to expanded demand and improved access for services. A corrective policy, to reduce demand, would contradict the broad social goal of equal access to health care and would be politically difficult to implement. On the other hand, inflation attributed to increased intensity implies policies that begin to question the relative worth of increasingly sophisticated of services. Procedures or equipment of low marginal benefit would be subject to scrutiny, as would physician utilization of services. Conversely, increases in the general inflation rate can hardly be considered controllable from the hospital's perspective. Few hospital level policies can affect the cost of purchasing inputs.

Figure 2.6 begins to separate out these sources of inflation. Costs per day adjusts for increases in volume, while the deflated dollars adjust for the general inflation rate. Therefore, intensity is estimated by adjusting for the other two sources of increases. Intensity is

Figure 2.6 U.S. Costs Per Admission in Constant Dollars, 1972-84



approximately the difference between a horizontal line (0 percent increase, adjusted for inflation and volume) and the slope of the cost line.

Studies have made similar breakdowns of the increases in costs. Joskow estimated that 60% of the increase in hospital expenditures was due to increases in relative input prices, 30% was due to the changes in the hospital product or "intensification" of services delivered, and 10% was due to increases in volume of services provided, including both population growth and increases in the demand for care.[3] The American Hospital Association contends that general inflation plays an even stronger role, accounting for over 70% of the increases in nominal hospital costs.[4] The implication here, of course, is that cost containment is beyond the control of the hospital since the industry can not control the inflation rate of the general economy. This contention supports "cost push" explanations of hospital inflation. That is, inflation is the result of input prices pushing the costs of hospital care upward. Related factors

3. Paul Joskow, Controlling Hospital Costs (Cambridge, MA: MIT Press, 1981), page 14-15.

4. John Alexander McMahon and David F. Drake, "The American Hospital Association Perspective" in Michael Zubkoff, et al, eds., Hospital Cost Containment (New York: PRODIST, 1978), page 81.

of cost push inflation are the large fixed costs of operating hospitals and the difficulty hospitals have in reducing excess capacity.[5]

Another important, and often incompletely assessed, component of the increase in hospital costs is labor costs, comprising over 55% of total hospital expenses. Historically, hospital employees have been underpaid and have only recently caught up with other sectors. Feldstein and Taylor found that labor costs increased between 1955-1975 but that this was mostly due to increases in the number of hospital employees, not the wage rates.[6] Their research indicates that if hospital wage increases had been at the national average (at 4.5% versus the industry's rate of 6.3% per year), hospital inflation would have decreased from 9.9% to 8.8% per year. In short, real hospital wage increases account for only one quarter of real hospital inflation. Adjusting for inflation, wages comprise only one tenth of the rise in hospital costs. In addition, as a proportion of the total average cost per patient day, the

5. Arnold H. Raphaelson and Charles P. Hall, "Politics and Economics of Hospital Cost Containment" in Journal of Health Politics, Policy and Law Vol.3, No.1 (Spring 1978), page 94.

6. Martin S. Feldstein and Amy Taylor, "The Rising Costs of Hospitals," Harvard Institute of Economic Research, Discussion Paper #531 (Cambridge MA: Harvard University, 1977), page 13.

labor component has decreased in every subsequent year since 1963 when it contributed 62% of total costs to its current level of 47%. Non-labor costs rose faster than labor costs: in 1984 labor costs increased 5.3%, whereas non-labor components increased 7.9%.[7] Other research has concluded that much of the hospital non-skilled wage inflation during the sixties was attributable to larger labor market factors such as the increases in the level of welfare payments (making work less attractive and thus raising wages) and the decline in discrimination in hiring (opening up alternative employment opportunities and forcing hospitals to compete with other industries for labor.) Increases in hospital wages were simply an attempt to narrow the inter-industry wage differentials for non-skilled workers.[8] Such supply side (or cost push) pressures support the hospital's contention that at least some of the inflation during this period was beyond the hospitals' control.

There is, however, ample evidence to support a "demand pull" theory of inflation. "Demand pull" inflation is caused by increased demand for more and more sophisticated

7. AHA, Hospital Statistics 1985 (Chicago: AHA, 1985) Table 5A.

8. David S. Salkever, Hospital-Sector Inflation (Lexington, MA: D.C. Heath & Co., 1979), page 109.

medical care, by both physicians and patients. Demand for improved services sparks the development of new, more sophisticated products that are more expensive. This argument assumes that while demand was increasing, there was also an increasing supply curve due to imperfect competition or changes in clinical practices.[9]

The consumption of hospital care violates many of the assumptions of a typical market. First, hospital care touches highly emotional responses in people, causing them to act irrationally (they are usually price insensitive) in their consumption patterns. Second, uncertainty surrounds this market good both in terms of the efficacy of treatment and in the incidence of illness. The uncertainty is coupled with an imbalance of information between buyer (patient) and seller (mostly physicians). The physician ends up acting as the patient's agent and supplier, resulting in overconsumption and excessive pricing, behavior that is reinforced by the uncertainty, information gap, and emotional nature of illness. Professional ethics also constrain pareto-optimal solutions by limiting the range of

9. An increasing supply curve could also reflect scarce resources but given that there is an oversupply of physicians and hospital beds (albeit poorly distributed), this is probably not the case in the market for hospital services.

quality of services and delivering all possible services, regardless of marginal efficacy or cost.[10]

Because of the unusual characteristics of health care as a commodity, individuals seek protection from the uncertainty and high costs through the purchase of insurance. Historically, private savings were advocated as the solution to the extraordinary costs of hospitalization. However, by the late 1920's and the Depression, the hospitals were in poor financial condition. Private savings could not be relied upon as a stable source of revenues. The birth of prepaid plans in the thirties stabilized the hospitals financially and provided affordable hospitalization for their subscribers.

Probably the single most important contributor to hospital cost increases is health insurance, due to its distortions of price for consumers and the establishment of a cost-based system of reimbursement for providers. Health insurance effectively lowers the cost of care at the time of consumption to zero. By lowering perceived prices, patients and physicians consume more services and more expensive services than would otherwise occur. In addition,

10. See Alan Detsky, The Economic Foundations of National Health Policy (Cambridge MA: Ballinger Publishing Co., 1978.)

hospitals, in response to widespread insurance, increase the sophistication and prices of their products.[11] Thus, the presence of insurance increases the demand for services, the services increase in sophistication in response to the increased demand, and prices increase, furthering the need for insurance. Welfare losses from over-insurance (that is, the costs of additional care exceeding the value to consumers) stem from over-consumption. Feldstein found that by increasing the coinsurance rate by 33% net welfare gains would exceed \$4 billion out of a total of \$12.6 billion spent on private insurance in 1973.[12] In real terms, the cost of out-of-pocket expenditures for health care has increased very little in twenty-five years due to the insulation from real prices provided by insurance.[13]

Excessive insurance purchases have been encouraged by

11. Martin S. Feldstein, "Hospital Cost Inflation: A Study in Non-Profit Dynamics", American Economic Review Vol. 61, No. 5 (December 1971), pp.853-870.

12. The welfare gains are a net sum of the welfare losses due to increased risk bearing of expenditures and the welfare gains from reduced price distortions in the consumption of services. See Martin S. Feldstein, "The Welfare Loss of Excess Health Insurance," Journal of Political Economy, Vol. 81, No. 2, page 255.

13. Net prices expressed in constant dollars increased 4% between 1950 and 1968. See Martin S. Feldstein, op. cit, page 269.

the tax system.[14] "Excessive" insurance refers to the coverage bought beyond the optimal level. The tax system encourages excessive purchasing because the employer contribution towards the insurance costs effectively reduces the net cost of the premium to the employee, such that the net cost of the premium is smaller than the expected value of the benefits.[15] Employers can deduct insurance costs as a business expense, employees could deduct a portion of their insurance premiums from their taxes until changes in the tax code in 1984, and premiums paid are excluded from state income and social security taxes. In addition, employer payments for health insurance (a common fringe benefit) are excluded from the taxable income of the employee. Combined, these tax subsidies are estimated to comprise 35% of the insurance premium.[16] In sum, both

14. The purchasing of insurance is not actuarially fair when the expected benefits do not equal the premiums paid.

15. Martin S. Feldstein, "Tax Subsidies, The Rational Demand for Insurance, and the Health Care Crisis." Journal of Public Economics, Vol. 7 (1977), page 155.

16. Paul Joskow, op.cit., page 24. Some analysts disagree with the degree to which tax subsidies influence insurance purchases by groups. Vladeck argues that consumers care concerned only about first dollar coverage and zero deductibles, calling the tax breaks "insubstantial." See Bruce Vladeck, "The Market vs. Regulation: The Case for Regulation", Milbank Memorial Fund Quarterly/Health and Society, Vol. 59 (1981), pp. 209-223.

employer and employee enjoy the advantages of providing insurance benefits--as a business expense for the former and by extending the dollar value of the benefits for the latter. The rich benefit package expansions during the forties and fifties also signalled a shift in management-labor relations, as management tried to secure employee loyalties (and ward off unionization in non-union workplaces), while unions could show tangible worth of their collective bargaining.[17]

Hospitals have also benefitted greatly from the advent of insurance. Throughout the 1930s the American Hospital Association worked hard on the development of "hospital service plans" (a new class of insurance) by establishing standards for plans, endorsing their growth, and lobbying in states for special enabling legislation. By 1945, thirty-five states had adopted legislation to form Blue Cross plans.[18] During the forties, private insurance companies rapidly expanded such that by 1955 their enrollees

17. Paul Starr, "Commentary", in Mancur Olson, A New Approach to the Economics of Health Care (Washington, D.C.: The American Enterprise Institute, 1981), page 121.

18. Sylvia Law, Blue Cross What Went Wrong? (New Haven: Yale University Press, 1974.)

outnumbered those of Blue Cross plans.[19] Insurance helped to secure hospital revenues and promote development of the undersized industry. The roots of insurance, protection of the hospital industry from bankruptcy, explain the liberal payment practices that formed the basis of reimbursement policies. "Reasonable costs," the cornerstone of Blue Cross payments since about 1945, essentially were the costs of operation, with little screening for reasonableness or efficiency.

When Medicare and Medicaid were enacted, they too adopted reasonable costs as their bases of payment, mostly out of political necessity. Hospitals and physicians had fought the enactment of these "social medicine" programs. In order to ensure provider participation, access for their beneficiaries, and swift implementation, government included familiar and liberal reimbursement practices. In fact, originally a "cost-plus" allowance was included to provide the capital needed for expansion to meet the increased demand created by the programs.[20] By offering access to

19. Health Insurance Association of America, Source Book of Health Insurance Data 1982-83 (Washington, D.C.: HIAA, 1984), Table 1.2.

20. See Stephen M. Weiner, "'Reasonable Cost' Reimbursement for Inpatient Hospital Services Under Medicare and Medicaid: The Emergence of Public Control," American Journal of Law and Medicine, Vol. 3, No.1, (Spring 1977), page 11.

medical care for the needy but previously underserved poor and elderly population, the public programs provided financing that encouraged growth. Consistent with virtually all health policy of the past thirty years,[21] the predominate philosophy of these programs was to expand the hospital sector and thereby improve the quality and accessibility of medical care.[22] In encouraging expansion and utilization, the rate of hospital inflation rose. Average hospital costs per patient day rose 6.2% between 1962-1965, while after Medicare and Medicaid implementation, between 1965-1970 the costs rose 13.9%. [23] Thus, insurance programs, originally designed to protect a financially troubled industry, were closely replicated by the public programs, including their inflationary "defects".

21. Principles followed in designing public policy included: compatibility with a private, decentralized system of care, the use of carrots instead of sticks to influence behavior, avoidance of rationing, and allowing a freedom of choice for all consumers. See Gerald Rosenthal, "Controlling the Cost of Health Care" in Michael Zubkoff, op. cit., pages 53-56.

22. David F. Drake, "Will Rate Regulation in the Hospital Industry be Effective? A Provider Inquiry," in Diane Hamilton, Rate Regulation (Germantown, MD: Aspen Systems Publication, 1979), page 26.

23. Karen Davis, "Theories of Hospital Inflation: Some Empirical Evidence," The Journal of Human Resources, Vol.8 (Spring 1973), page 181.

The demand for hospital insurance grew as the costs of hospitalization increased and consumers sought protection from potentially catastrophic hospital bills. The expansion of private and public insurance programs increased accessibility and demand for hospital care. At the same time that demand was increasing, the nature of the hospital product was intensifying and contributing to hospital cost increases. Increases in the number of employees per bed, the number of tests and other ancillary services per admission, the proportion of ancillary charges to room and board charges of an average hospital bill, and the scope of services offered all document the intensification of hospital care. Table 2.7 shows the increasing availability of specialized services in short-term general hospitals. Feldstein and Taylor, and Joskow in separate studies estimated that three quarters of the rise in hospital costs above inflation were due to increased volume of supplies and equipment.[24] Feldstein and Taylor also found that larger and teaching hospitals have higher than average rates of increase.[25] These facilities have higher costs due to the higher intensity of services delivered, and the additional

24. Feldstein and Taylor, op. cit., page 20; and Joskow, op. cit., pages 14-15.

25. Feldstein and Taylor, op.cit., page 12.

costs associated with teaching and research responsibilities.

Table 2.7 Short Term Hospitals Offering Specialized Services

	1972	1979	1984
	-----	-----	-----
No. of Hospital Reporting	5456	5319	5363
Open Heart Surgery	450	549	631
Histopathology Laboratory	2611	2960	3537
Inhalation Therapy	3556	4675	5001
Hemodialysis	588	1027	1377
Genetic Counseling	154	290	424
Intensive Care (Cardiac Only)	1924	1660	1471
Intensive Care (Mixed)	3191	3616	4171

Source: Data Compiled from the AHA, Hospital Statistics, (Chicago: AHA, 1985), Table 12A.

It would be inaccurate to suggest that only the teaching hospitals have experienced this intensification of services. There has been widespread intensification as a result of many pressures from various sources. The hospital products have changed with the medical discoveries that often require high technology diagnostics and therapies. Hospitals have often been accused of having low increases in technical progress.[26] This argument, as stated, is

26. See Martin S. Feldstein, "The High Cost of Hospitals--And What to do About It," The Public Interest Vol.48, (Summer 1977).

clearly false. Hospital have housed numerous technological innovations, but unfortunately most have been cost-inducing, not cost reducing. A distinction between process (innovations that improve the process and efficiency of production) and product innovations (new products) is important. Hospital have seen very few process innovations which lower per unit costs of products and improve efficiency. Rather, the medical field is replete with product innovations which introduce new and more expensive products.

Patient advocacy and defensive medical practices, particularly with increased threats of malpractice, encourage physicians to use the equipment and extensive ancillary services. In addition, the training most physicians have received emphasizes scientific instrumentation. Another pressure for intensification is the consumer, who may equate high technology services with high quality. Finally, as hospitals compete for physician affiliation, hospitals are compelled to offer the newest in equipment to attract and keep their medical staff.[27] Most recent medical advances have made hospital care more

27. Judith L. Wagner and Michael Zubkoff, "Medical Technology and Hospital Costs," in Michael Zubkoff, op. cit., page 269.

intensive and technologically oriented. Prior to 1960, most of these advances took the form of new drugs, an inexpensive treatment to administer. After 1960, many innovations involved technically complex diagnostic and therapeutic procedures which, in contrast, were expensive to develop and administer.[28]

The movement towards intensification of services at community hospitals is illustrated in Table 2.6. While the number of hospitals has not increased substantially, the number and type of hospital beds and services have changed. Specialty services have been established by community hospitals as these facilities try to compete with large teaching hospitals. Once constructed or purchased, hospitals often try to realize economies of scale by increasing utilization and decreasing unit costs. Though savings on a per unit basis may be achieved, total hospital costs may increase.[29] Finally, as medical efficacy reduces the need for certain hospitalizations, one would expect hospital case mix to intensify and costs to increase, simply as a function of shifting medical practices.

28. Victor Fuchs, Who Shall Live? (New York: Basic Books, 1974), page 93.

29. Michael A. Redisch, "Physician Involvement in Hospital Decision-Making," in Michael Zubkoff, op. cit., page 226.

In sum, hospital inflation has occurred as follows. Widespread insurance coverage, due to the expansion of private and public programs, secured 90% of hospitals' revenues. By providing comprehensive hospital coverage but often requiring some deductible for ambulatory, non-hospital based services, insurance also encouraged hospital based care rather than the utilization of less expensive, non-hospital substitutes.[30] Physicians, using their training as a basis and wanting to practice high quality and defensive medicine, demanded the newest equipment and best medical care available. Neither patients nor physicians felt prices enter into the decision-making, thanks to insurance. Hospital administrators feared the loss of their physicians to other competing hospitals and wanted to build up their own institution's reputation. Seeing the reimbursement for these expenditures as no constraint, administrators okayed most construction and equipment requests. The private and public insurance mechanisms viewed themselves as mere fiscal agents and simply reimbursed the hospitals for whatever costs ("reasonable" being quite liberally interpreted) were incurred. It is important to note that all participants exhibiting this

30. Mary Lee Ingbar, "The Consumer's Perspective," in Michael Zubkoff, et al, op. cit.

inflationary behavior were acting exactly as the incentives in the system and their motives would have predicted. But without any meaningful controls acting on the consumers, physicians, or hospitals, it is little wonder that hospital costs escalated.

2.3 Programs to Contain Costs

Government interest in controlling costs began in the seventies as hospital cost increases exceeded projections and threatened the solvency of the Social Security program. Previously, regulatory efforts had focused almost exclusively on controlling the quality of care (via licensure and certification requirements) and improving distribution of resources (via the Hill-Burton Hospital Construction and Survey Act and the implementation of Medicaid and Medicare.) However, with hospital cost increases running about double the CPI and consuming an increasingly larger share of the federal budget, regulation shifted to fiscal objectives. Government cost containment activities were housed mainly in three programs: the Professional Standards Review Organizations, the Certificate of Need Program, and various state rate setting programs.

These programs focus on the supply side controls, with no efforts made to control demand. This is an obvious omission and is only one of many design flaws in each of the programs. In addition, the market for hospital services does not exhibit any of the favorable conditions for successful regulation, further suggesting the limitations of regulatory efforts. Such conditions include: natural monopoly, limited number of products, low demand elasticities, a large number of providers with a few poor performers, and a single measurable, objective outcome.[31]

Before describing each program and its success at containing costs, it is useful to outline the structure of any regulatory effort. These general comments will help to identify weaknesses in each of the programs discussed individually. In general, the regulatory environment can be seen as a game of bargaining and conflict resolution, with compromises inherent in the policy outcomes.[32] From the regulator's perspective, the agency has to balance widespread effectiveness with limited agency resources

31. See Richard Zeckhauser and Christopher Zook, "Failures to Control Health Care Costs: Departures from First Principles," in Mancur Olsen, op. cit., pages 96-99.

32. Penny Feldman and Marc Roberts, "Magic Bullets or Seven Card Stud," in Richard S. Gordon, ed., Issues in Health Care Regulation (New York: McGraw Hill, 1980), page 71.

available to design the program and enforce compliance. An overly strict or lax program may tie up agency resources as the regulator attempts to defend its actions. Case by case reviews may be tempting due to their ability to address the complexities of any industry, yet are costly to administer and tend to be generous in their determinations. Without being "captured", the regulator has an incentive to reach consensus with the regulated industry to ease implementation, monitoring, and compliance efforts.[33]

Compared to the regulatee, however, the regulator is disadvantaged in terms of technical expertise, the degree of organized support, and resources available to limit regulatory efforts. Specifically, hospitals are very well organized, have similar economic interests, face high compliance costs, and are significantly affected by the regulations. These traits have, until recently, enabled

33. An economic theory of regulation would include here that regulatory benefits are granted to that interest group which values it the most. Consumers, with diffuse and politically ineffective interests, are at a disadvantage when pitted against a highly organized industry like the hospitals. Moreover, the agency, sensitive to a positive review of its successes, may favor the industry so as not to appear unfair. See Roger Noll, "The Consequences of Public Utility Regulation of Hospitals," in National Academy of Sciences/Institute of Medicine, Controls on Health Care (Washington DC: Institute of Medicine, 1975); and George Stigler, "The Theories of Economic Regulation", Bell Journal of Economics and Management Science, Vol. 2, No. 1, (Spring 1971), pages 3-21.

them to essentially self-regulate or to sufficiently limit the impacts the regulations may have on hospital operations.

In addition, hospitals are complex organizations with multiple goals and strong professional groups that shape their administration. The goals of these groups at times conflict with cost containment efforts undertaken by the administration and will inhibit their success. Moreover, physicians are rarely directly included in regulations to control costs and yet have opposing incentives and objectives. The failure of cost containment may simply reflect an equilibrium within the hospital that values other objectives such as prestige, high quality, or education of medical students. Or, the failure may be the product of poorly thought out regulation that encouraged exactly the observed behavior.

The next section discusses the three main regulatory programs to control hospital costs: the Professional Standards Review Organizations, the Certificate of Need Program, and various state rate setting programs. In addition to describing each program, I will outline the successes and failures to further our information about what makes a good regulatory program work.

2.3.1 Professional Standards Review Organizations

Professional Standards Review Organizations (PSRO's) were established in the 1972 Social Security Amendments, Public Law 92-603. Their objective was to ensure medical necessity and proper quality of care provided to Medicare, Medicaid, and Maternal and Child Health Program beneficiaries. Responding to professional criticism, the PSROs used local physicians in their review of medical necessity and appropriateness. The application of nationally developed standards to local practices was successfully warded off by the AMA and the approval of norms remained in the control of regional boards. Either through an approved hospital utilization review program (delegated status) or through an independently established PSRO (non-delegated status), concurrent review was performed on admissions and length of stay, and retrospective review was done to ensure that professionally accepted standards of care were met. About 70% of the reviews were performed by the hospital (delegated).

The program, both its design and objectives, is replete with fundamental problems that undermine its ability to meet one of its objectives, cost containment. First and foremost, professional determination of the balance between

benefits and costs of any procedure will undoubtedly lead to very different results from cost containment. Professionally developed norms will result in assuring quality of care but with its attendant costs.[34] Second, there is considerable lack of consensus about professional standards of care which, combined with the delegated status of the majority of the programs, results in widely varying standards. The lack of consensus reflects in part problems with data the state of the art of quality assessment. Due to these limitations, programs tended to approve processes of review, rather than review actual outcomes.[35] Third, the program was highly unpopular with physicians who saw the program as government intervention into medical practice. Organizationally, since most of the reviews were housed at the hospital, there was tension between satisfying the program objectives and the host hospital. A highly successful PSRO would undermine the little support it had within the hospital. Again, this might lead to compliance with the formal requirements of the law but fall short on

34. James Blumstein, "The Role of the PSRO in Hospital Cost Containment", Economics and Health Care (Cambridge, MA: Milbank Reader MIT Press, 1981), page 335.

35. Sloan and Steinwald, "Regulatory Approaches to Hospital Cost Containment: A Synthesis of the Empirical Evidence", in Mancur Olsen, New Approach to the Economics of Health Care (Washington, D.C.: American Enterprise Institute, 1981.)

the implementation of control activities.[36] Last, the program relied on negative sanctions with no positive rewards for effective programs. Physicians, already skeptical, were contacted only when their judgement was in question, not when they were performing effectively. In addition, hospitals did not share in any of the savings that accrued as a result of their successful efforts.[37]

Crippled by a conflicting mandate and poor design, it comes as little surprise then that PSROs have had mixed results. Four studies have evaluated the the results of this program:[38]

1. Gertman (1979) found that a binding utilization review program of a PSRO in the hospital area had no effect on changes on levels of utilization of Medicare beneficiaries.
2. Coelen and Sullivan (1980) found no evidence that PSROs had any effect on hospital costs per patient day or per admission.

36. Health Care Financing Administration, Health Care Financing Report: PSRO 1979 Program Evaluation (Baltimore: Health Care Finance Administration, 1980), page 145.

37. Health Care Financing Administration, op. cit., page 145.

38. Sloan and Steinwald, op. cit., Table1.

3. HCFA (1980) found a statistically insignificant reduction (-1.7%) of days of care per Medicare beneficiary, with wide inter-regional variations. Separating diagnoses into likely and not likely to be amenable to PSRO review, the study found that 4/5 of the diagnoses that were thought to be easily influenced by review had significant reductions in utilization. Conversely, 4/5 of the diagnoses thought not to be influenced by review in fact were not. The study concluded that the program's effectiveness was related to the nature of the illnesses.
4. An AHA survey (1979) found a statistically significant difference between areas with and without an active PSRO in disallowances and reductions in payments.

It is unfortunate that more studies on PSROs have not been conducted since the mixed reviews of this program do not provide conclusive evidence about its efficacy. Broad scale evaluations have not been done in part because of the slow implementation of the program. By 1979, no PSRO had yet to fully implement all aspects of the law, probably due to the conflicts within the hospital such implementation would impose.

2.3.2 The Certificate of Need Program

The Certificate of Need Program (C.O.N.), attempts to limit hospital expansions, thereby controlling utilization and costs. The program was the main regulatory arm of the National Health Planning and Resources Development Act of 1975 (PL 93-641.) It required all hospitals planning major expenditures for new equipment, services, and facility expansion to obtain regulatory approval. Failure to do so until 1983 jeopardized depreciation, interest, and other costs for these services from public payers and some Blue Cross plans, and in some states can lead to the pulling of hospital licenses. The goal of the program was to limit and equally distribute health care resources through the establishment of a licensing mechanism to limit access into the marketplace. By controlling capital investment, associated operating expenses would also be limited. The program was designed (1) to provide due process into a policy arena that is heavily dominated by well organized interests groups, affording consumers, labor, and weak institutions the chance to be heard, and (2) to increase the accountability of the providers.

The effectiveness of the Certificate of Need program has

been doubted by many who believe that the program is theoretically weak. It attempts to correct only one market failure, facility duplication, by establishing entry controls. They argue that by design the process is: (1) susceptible to provider domination, (2) protects existing, particularly large and influential providers, and tends to fix the current configuration of resources and, (3) lacks the objective criteria by which to make resource allocation decisions and thus becomes political. The program ignores the fact that hospitals compete on the basis of service rivalry and therefore operate under an expansion and modernization imperative. Trying to control these forces, while critical to cost control, will be very difficult since it taps the lifeline of these institutions.

The lack of criteria may be the single most important weakness in the CON program. The lack of acceptable standards leaves the process subject to provider domination and reliant on a costly case by case review that favors the unique qualities of every application. Absolute need can be easily (if poorly) justified, and the program never required the facilities to make tradeoffs inherent in the determination of relative need. The lack of standards for medical technologies and services may result in programs being less able to control these areas of capital

expenditures and being more successful at controlling bed supply (where there is national consensus on the applicable standards.)

Both capture and political-economic models of regulation would predict that such a program would not be successful. The first would argue that the C.O.N. program would be captured since the hospital industry has superior information and will use strong lobbying efforts to protect its narrow interests. The political-economic theorists contend that the regulator will not serve the public interest because it will make decisions to minimize costly conflicts that could tarnish the agency's image of appearing efficient and equitable. Project approvals will, therefore, favor large institutions, new services, and equipment purchases (since these projects lack review standards) over new entrants to the market and increases in beds.¹

Several studies have investigated the effectiveness of the C.O.N. program on hospital costs. Bicknell and Walsh

1. See David S. Salkever and Thomas W. Bice, "Certificate of Need Legislation and Hospital Costs," in Michael Zubkoff, op. cit., page 429-460; and Clark Havighurst, "Regulating Health Facilities and Services by Certificate of Need", Virginia Law Review, Vol. 59, pages 1143-1155 for complete discussions of the theoretical weaknesses and perverse incentives of the regulatory strategy.

examined the initial experience of the Massachusetts program and found that it resulted in higher per diem rates due to the increased construction costs and the intensification of services as hospitals shifted program content away from bed expansion.² Two multi-state comparative studies concluded that the law had redirected (but not reduced) expenditures to new services, reduced utilization but increased costs, and encouraged preemptive investment in plant assets.³ The program's failure to control assets per bed supports the hypothesis that consensus on standards is central to their successful application. Sloan and Steinwald found that comprehensive CON programs (controlling service expansion, beds, and equipment purchases) were not successful at controlling costs, whereas CON programs that focused primarily on bed expansion were effective at controlling

2. William Bicknell and Diane Chapman Walsh, "Certificate of Need: The Massachusetts Experience", New England Journal of Medicine, Vol. 292, (May 15, 1975), pages 1054-1061.

3. Fred J. Hellinger, "The Effects of the Certificate of Need Legislation on Hospital Investment," Inquiry Vol. XIII, (June 1976), pages 187-193; and David S. Salkver and Thomas W. Bice, op. cit..

4. Frank A. Sloan and Bruce Steinwald, Insurance, Regulation, and Hospital Costs (Lexington MA: Basic Books, 1980), page 160 and Frank Sloan and Bruce Steinwald, "Effects of Regulation on Hospital Costs and Input Use," Journal of Law and Economics Vol. 23, No. 1 (1980), pages 81-110.

costs.⁴ In general, the law had reduced bed supply but did not affect capital investments, and hence, did not control total hospital costs. Although these studies concluded that preemptive behavior did occur prior to the law's enactment, the results could simply indicate that the states adopting the laws early were those with the highest costs (and need for such programs). While some observers find these preemptive behavior explanations implausible, arguing that capital investments require long lead times to develop, I think that many hospitals already contemplating investments may have been provoked into action to avoid imminent regulation.⁵

Other studies had similar negative findings--the program did not control hospital costs, as measured by hospital investment, or costs per patient day or per admission. Likewise, the distribution of hospital capital was not changed, indicating a reinforcement of the existing configuration of hospital resources.⁶

5. Paul L. Joskow, Controlling Hospital Costs, op. cit., page 134.

6. Steinwald and Sloan, "Regulatory Approaches to Hospital Cost Containment: A Synthesis of the Empirical Evidence", in Mancur Olsen, op.cit., Table 1.

Closer examination of the effects of CON reveal that the law did improve with more mature programs. Studies found that the effectiveness increased with the age of the program, indicating that agency learning is important to effectiveness.⁷ Effectiveness has also been shown if one looks beyond the approval rates of the agencies to include decisions such as withdrawals, approvals in part, and conditional approval.⁸ If one separates the effects of the CON program from other reimbursement regulation, however, the results are less dramatic. Joskow found that controlling for other regulatory efforts (such as rate regulation, Medicare limitations, and more stringent Medicaid eligibility), CON had little additional effect on reducing hospital expenditures.

The minimal effects of the CON program on hospital costs are not surprising given its theoretical and political limitations. In addition, its ineffectiveness probably relates to the law's multiple goals that built conflict into

7. Sloan and Steinwald, Insurance, Regulation, and Hospital Costs, op. cit., page 169.

8. Alvin E. Header, Jr., "Measuring the Effect of Economic Regulation: The Certificate of Need Regulation in Hospitals in Massachusetts 1972-1978," Cambridge: MIT Dissertation, 1981, page 159.

its implementation. Containing costs, improving the distribution of resources, and ensuring adequate quality of care are incompatible goals, and the program's focus has shifted between them. Added to this diversity of goals is the constantly changing state political environments that shifted emphasis between objectives to suit political and economic ends. Moreover, the design of the CON program places constraints only on large projects. Hence, the program ends up touching only a fraction of a hospital's decisions about expenditures and does not address other obvious sources of excessive expenditures such as consumption inefficiencies, internal pressures to invest in capital and new services, and the likely distortions caused by the regulation. Finally, trying to limit utilization implies rationing that to date has been politically unacceptable and administratively very difficult to implement. Because need has yet to be measured relative to other resources (both within the same hospital and between facilities), tradeoffs have yet to be forced.

2.4 Rate Setting Programs

The third major type of regulation directed at containing

costs is the state prospective rate setting programs. These programs establish rates of payment for a given unit of service or for the total hospital budget for the coming year. Regardless of the costs actually incurred, hospitals are reimbursed these predetermined amounts (budget, charges per service or per case, or per diem rate.) States have implemented prospective rate setting programs in response to several pressures to contain hospital costs. The state governments were attempting to limit their own liability as Medicaid budgets required increasingly large appropriations. Consumers and business were increasingly frustrated with repeated hikes in insurance premiums. In states where Blue Cross pays the lower of costs or charges, commercial insurers prompted legislation which would limit the gap between costs and charges. And interestingly, some hospital administrators hoped that rate setting programs would enhance the cash flow of hospital revenues and ensure fair reimbursement for services as payers became more restrictive in their definitions of allowable costs.⁹ Thus conceived, the programs had three slightly different goals: to decrease per unit prices, overall hospital expenditures,

9. Katherine Bauer, "Hospital Rate Setting--This Way to Salvation?", Milbank Memorial Fund Quarterly/Health and Society, Vol.55, No.1 (Winter 1979), pages 117-158.

and cost shifting between payers.

Payments under prospective systems are determined in two ways. A formula method compares the costs of a unit of service (either by service, per stay, or per day) in a given hospital with costs of this peer group of hospitals. Hospitals are categorized according to size, teaching status, and mix of services. Rates are calculated based on the mean, or slightly above it, of this peer group's costs. In the other methodology, hospitals construct individual budgets for submission to a regulatory agency, which may reduce or eliminate "unreasonable" costs. Based on this approved budget, rates (usually per diem) may then be calculated or the entire budget allocated to the various payers, depending on the system. Many programs combine these methods and initially review individual hospital budgets and then update the payments periodically by applying a formula to adjust for inflation, volume, and exceptions.

Numerous studies have analyzed the effectiveness of the rate setting programs. In general, they indicate that rate setting reduced the rate of increase in hospital expenditures by between 3 and 5 percentage points, relative to no regulation at all. The earliest rate setting programs

had no significant effect on containing average costs per patient day. Studies found that much of the (insignificant) decrease could be attributed to the Economic Stabilization Program implemented in 1971-75.¹⁰ These early programs (New Jersey, Western Pennsylvania, and Rhode Island) also tended to be voluntary, thereby encouraging a self selection bias. Hospitals with high costs or with considerable slack tended to participate, making generalizations about the efficacy of such programs difficult to make.

As mentioned above, the initial results of the rate setting programs were confounded by the Economic Stabilization Program between 1971 and 1974. In a sense, the ESP can be seen as a rate control program since it froze wages, prices, and rents (Phase I) and placed ceilings on the rates of increase for medical prices and annual revenues (Phase II). This type of revenue cap is of particular interest now that more recent prospective payment regulations have adopted or contemplated similar restrictions. The ESP was initially thought to have been

10. Fred Hellinger, "An Empirical Analysis of Several Prospective Reimbursement Systems," in Michael Zubkoff, op. cit., pg. 370-400, and William L. Dowling, "Hospital Rate Setting: How, and How Well Do They Work?", in Diane Hamilton, ed., Rate Regulation (Germantown, MD: Aspen Systems Publications, 1979)

effective at controlling wages and prices, but ineffective at controlling total hospital costs. Its poor performance was thought to be due to its lack of attention to increases in intensity or volume of services.¹¹ Moreover, the controls that were eventually instituted in Phase II were poorly constructed and actually encouraged increases in volume and costs by paying average, not marginal, costs for additional units of service.¹² Per diem rates surged after the controls were lifted, implying that whatever gains had been achieved were short-lived and by the end of 1975 costs were probably where they would have been without the program.¹³ A more recent study has questioned these conclusions, arguing that the ESP reduced hospital cost-growth by several percentage points.¹⁴ The apparent lack of consensus about the effects of ESP suggest that the

11. Paul B. Ginsburg, "Impact of the Economic Stabilization Program on Hospitals: An Analysis with Aggregate Data", in Michael Zubkoff, op.cot., pages 293-323.

12. Joseph Lipscomb et al, "The Use of Marginal Cost Estimates in Hospital Cost Containment Policy," in Michael Zubkof, op. cit., pages 514-537.

13. Irving Levenson, "Policy Coordination and the Choice of Policy Mix," in Michael Zubkof, op. cit., pages 609-635.

14. Frank Sloan, "Regulation and the Rising Cost of Hospital Care," Review of Economics and Statistics, Vol. 3 (1981), pages 479-87.

policy was not overwhelmingly successful.

As might be expected, the programs had the most effect on the departments most directly controlled by the hospital administrator (for example, general services like housekeeping, dietary, laundry, plant operations) and the least effect on reducing costs in those departments where physicians have the most control (for example, ancillary departments).¹⁵ Consistent with this observation were the findings that the programs had no discernable effect on the quality of care.¹⁶ Interestingly, the programs appeared to affect the financial status of the regulated hospitals, mostly by reducing net revenues and the endowment capital.¹⁷

The early programs indicated several important features of effective rate setting. First, the longer the programs had been in place, the more effective they became, indicating a certain lag time before they work and an agency learning curve. Second, the failure of some programs can be

15. Fred Hellinger, op. cit., page 314.

16. David S. Salkever, Hospital-Sector Inflation, op.cit., page 152.

17. Ibid., page 154.

attributed to contradictory incentives in the regulations. For example, some programs encouraged hospitals to decrease their costs in the short-run but used these reduced costs in the long-run as a basis for hospital payments. Hospitals facing eventual "ratcheting down" have no long-run incentive to reduce costs, since any institution which contains costs eventually hurts itself. Some programs encouraged increases in volume by emphasizing per unit costs rather than total hospital costs. Payment systems using per diem methodologies (e.g., Western PA, NJ, and NY) and/or occupancy penalties (MA and NY) provide incentives for hospitals to increase admissions and/or length of stay. Furthermore, increased volume decreases the average per unit costs. Other programs base their rates on average rather than marginal costs. Increasing volume under this type of system decreases the per unit costs below the reimbursement level, resulting in profits for increased volume. In either case, emphasis on per unit costs may ignore total hospital costs, which may actually increase if volume increases. Last, the lack of effectiveness may have been due to the limited scope of the programs. None of the programs regulated all payers. This may have insulated hospitals from confronting cost containment regulations by allowing cost shifting strategies.

An incomplete regulatory system allows hospitals to shift disallowed costs onto non-regulated payers in two ways. First, the payment system can allow for the establishment of charge levels sufficiently generous to over-compensate for any relative underpayment by any regulated payer. A second, more indirect method, is through what is termed "charge rationalization", i.e., the manipulation of charges for individual services with the goal of maximizing revenues. Underpayments by one payer are made up through increasing charges for services predominantly used by other payers. This practice leads to cross-subsidization between payers based on differential pricing schemes. Unlike cross-subsidization between expensive and less expensive services, with the goal of service availability, the objective of this practice is to generate revenues.

Studies including more recent data indicate that rate setting has been successful in reducing hospital expenditures per admission and per patient day, and to a

18. Paul Joskow, op. cit., page 147, Craig Coelen and David Sullivan, "An Analysis of the Effects of Prospective Reimbursement Programs on Hospital Expenditures", Health Care Financing Review, Vol.2, No.3, (Winter 1981), pg. 1-41; and Brian Biles, Carl J. Schramm, and J. Graham Atkinson, "Hospital Cost Inflation Under State Rate Setting", New England Journal of Medicine Vol. 303 (Sept. 18, 1980), pages 664-668.

lesser extent, per capita.¹⁸ As with the implementation of the C.O.N. programs, the high cost states were the first ones to enact rate setting regulations and as the programs began to work the gap between high cost states and the lower cost, non-regulated states has narrowed. These more recent studies indicate that mature programs (over two years old) reduce the rate of increase in costs by 2-3 percent annually, with a total long-run reduction expected in the 10-20 percent range.¹⁹ Mandatory programs continue to have more consistently significant results than voluntary programs, even though voluntary programs can be as effective at controlling costs.²⁰ Figure 2.8 shows the estimated annual increases in expense per capita and expense per adjusted day with and without prospective payment systems.

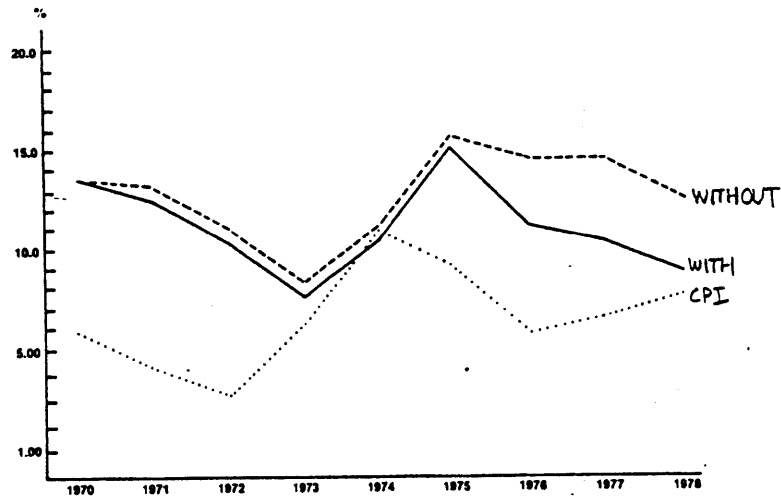
By focusing on narrow objectives, some rate setting programs had a variety of undesirable side effects. For example, programs focusing on per unit costs were often able to control them, but at the expense of increasing volume. Per diem regulatory programs have resulted in increased

19. Charles L. Eby and Donald R. Cohodes, "What Do We Know About Rate Setting?", Journal of Health Politics, Policy, and Law, Vol.10, No.2 (Summer 1985), pp.299-335.

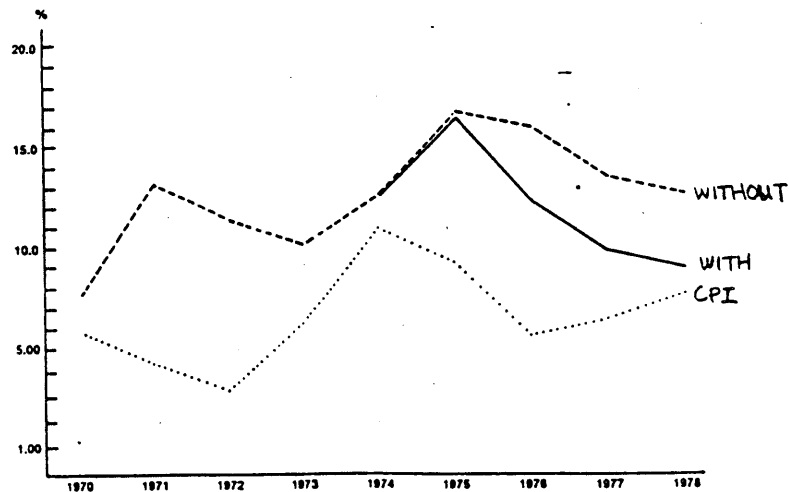
20. Coelen and Sullivan, op. cit., page 18.

Figure 2.8 Effect of Prospective Payment Systems on Expense Per Capita and Per Adjusted Patient Day 1970-78

Estimated Annual Percentage Change in Expense Per Adjusted Patient Day, With and Without Prospective Payment Systems (includes CT, MD, MA, NJ, and NY)



Estimated Annual Percentage Change in Expense Per Capita, With and Without Prospective Payment Systems (includes MA, NY, RI, and WA)



Source: Craig Coelen and Daniel Sullivan, "An Analysis of the Effects of Prospective Reimbursement Programs on Hospital Expenditures", Health Care Financing Review, Winter 1981.

lengths of stay.²¹ Volume effects were also noted in the early New York program, as length of stay, admissions, and patient days increased.²² Rate setting methods that use comparative groupings encouraged hospital costs to move towards the mean, implying that some hospitals actually increased their costs to the mean.²³ Programs which attempt to be equitable by treating all hospitals uniformly may in fact penalize hospitals which need particular protection. For example, isolated hospitals could be penalized, for example if held held to peer group averages, by having relatively high average per unit costs due to low volume. Yet because one would want the service to be accessible, the hospital would need special exemption from a penalty situation to avoid service discontinuation. Similarly, hospitals serving a disproportionate number of uninsured patients may need special consideration in funding their uncompensated care. Likewise, urban teaching hospitals may

21. Nancy Worthington and Paula Piro, "The Effects of Hospital Rate Setting Programs on Volumes of Hospital Services", Health Care Financing Review, Vol.4, No.2, (December 1982), pages 47-67.

22. See David S. Salkever, op.cit., page 150.

23. Judith Lave et al, "Incentive Reimbursement for Hospitals," Medical Care, Vol. XI, No.2 (March/April 1973), page 84.

have particular difficulty living within the controls because of the expensive nature of the services provided, the complex case mix, and the large proportion of under- and un-insured patients.²⁴

Prospective payments have also been found to reduce the proliferation of new technology and services, particularly for those services which increase the complexity and scope of services.²⁵ Interestingly, those services likely to be phased out include services classified as quality enhancing and community services. These results support the thesis that services which are politically expendable and a financial drain on hospitals will be phased out as hospital payments are constrained, leaving the politically and economically necessary services.²⁶

24. One study found that hospitals with more complex case mixes had higher rates of increase than non-teaching hospitals. See Judith Lave, op. cit., p.84

25. Jerry Cromwell and James R. Kanak, "The Effects of Prospective Reimbursement Programs on Hospital Adoption and Service Sharing", Health Care Financing Review/December 1982/ Volume 4, No. 2, page 70-77.

26. Victor Capoccia and Bradley Googins, "The Wrong Way to Curb Hospital Costs", Boston Globe, May 1, 1983.

2.5 Implications for Designing Effective Programs

The cost containment programs to date have had varying success at controlling rates of growth of hospital costs. While many of the early programs were not very effective at controlling costs, they did provide policy-makers with useful information about hospital behavior under regulation, ineffective regulatory strategies, and undesired effects of certain policies. All of these programs, successful or not, can assist in the design of prospective payment systems that do not repeat the past mistakes of previous regulatory efforts. These lessons are outlined below.

Programs must be mandatory before they are effective. Work by Coelen and Sullivan indicated that mandatory programs were more likely to significantly reduce costs than voluntary programs.²⁷ A government report found that increases in expenditures per admission were lower for

27. Craig Coelen and Daniel Sullivan, op. cit., p.18.

28. GAO, "Rising Hospital Costs Can Be Restrained By Regulating Payments and Improving Management," (Washington, DC: Government Printing Office), HRD-80-72, September 1980.

mandatory programs than advisory or voluntary programs.²⁸ The inconclusive evidence of the Voluntary Effort (a voluntary, private sector alternative instituted in 1978-79 in an effort to ward off more sweeping government regulation) also supports this recommendation. Another study by Sloan found reductions in cost per admission and per patient day for mandatory programs.²⁹

The programs should also regulate total hospital costs, not per diem costs. Programs focusing on per diem costs, without length of stay penalties, have resulted in increases in volume.³⁰ This observation is likely to be applicable to controlling only certain areas of hospital costs, for example inpatient costs. Limited controls may result in increases in other service areas.

To avoid shifting rather than reducing costs, all payers must be covered by the payment system. Studies of the New Jersey experience under partial coverage indicate that hospitals which most successfully controlled costs were those

29. F.A. Sloan, "Regulation and the Rising Cost of Hospital Care", Review of Economics and Statistics, Vol. 3, (November 1981), pages 479-487.

30. Nancy Worthington and Paula Piro, op. cit.; and David Salkever, Hospital-Sector Inflation (Lexington, MA: D.C. Heath, 1979.)

whose payer mixes resulted in the most comprehensive regulation.³¹ In addition to increased effectiveness, all payer systems increase equity between payers and, combined with uniform reporting, minimize the ability of hospitals to cost shift through charge rationalization.

In addition to equity between payers, the system should ensure equity between hospitals. There should be adequate payments such that an unusual payer mix, case mix, service mix, or location by themselves do not jeopardize their financial stability. Inadequate adjustments for these factors will result in discrimination against certain types of cases or payment sources. For example, inadequate financing of uncompensated care will result in skimming of fully insured patients and "economic transfer" of under- or uninsured patients to public institutions. Similarly, failure to fully account for the severity of the patients treated (the case mix) can lead to dumping of complex and expensive patients and encouraging admission of "easy" cases. Incentives can be designed to encourage increased access by the payment of greater than marginal costs for

31. Michael D. Rosko, "Differential Impact of Prospective Payment on Hospitals Located in Different Catchment Areas", Journal of Health and Human Resources Administration (Summer 1984), pp.61-83.

increased admissions of certain categories of patients, or through the development of case mix adjusted measures of volume. Short and long run incentives should reinforce identical behavior.

Payment systems should also accomodate the cross-subsidization between services that is practiced by many hospitals. Harris found that the rates for routine diagnostic and therapeutic procedures and room and board charges cross-subsidized surgical care, special diagnostic procedures, and the coronary and intensive care units.³² The cross-subsidization allows for the underwriting of expensive services and may result in increased service availability. Rate regulation (such as average cost pricing) which does not recognize this important welfare function may inadvertently limit a hospital's ability to offer certain services. A payment system should, therefore, be evaluated both in terms of its adequacy to cover costs and its effects on cross-subsidization.

The minimal effects of the Certificate of Need Program (and its dismantlement in several states) on capital costs

32. Jeffery E. Harris, "Pricing Rules for Hospitals", Bell Journal of Economics, Vol.10, No.1 (Spring 1979), pp.224-243.

underscore the importance of bringing these costs into any payment system. To date, no regulatory program has been able to achieve the politically difficult integration of capital into the payment system. Because capital (both for buildings and equipment) is central to a hospital's ability to attract and maintain its physician staff, its control is strongly opposed by the hospital industry. As third party dollars for hospital care shrink, hospitals will also be encouraged to evaluate the costs and benefits of any investments, including cost-saving technologies.

Rate setting programs may increasingly require the involvement of physicians in the resource allocation decisions within hospitals. There are two reasons for this. First, as payer dollars becoming increasingly restricted, there will be increased pressure within the hospital to allocate limited resources between service areas. Second, as administrators achieve cost reductions on their own (through increased efficiency of administration and overhead areas), it will be incumbent upon them to shift their attention to physician practice patterns. Profiles of acceptable medical practice by diagnoses will be identified and administrators, armed with limited payments, will be able to increasingly question aberrant practices. In areas of clear consensus, costs will be more likely to be reduced

because agreement can be more easily reached.³³

Past regulatory efforts suggest several recommendations about the regulatory process. First, a single goal ought to direct agency actions. Multiple goals, often fundamentally contradictory as in the case of the CON and the PSRO programs, undermine the agency's ability to achieve any one of them. Second, compromises made with the regulated parties may ease implementation but will weaken the provisions. The PSRO program, in using delegated review and professionally determined norms, made the program unlikely to control hospital costs. Likewise, the risk of court cases increased the approval rates of proposed CON projects. Another inherent tension that must be balanced is the use of case by case review versus formulae. Individual case review accommodates variation within the industry but is both resource intensive to administer and may result in overly generous payments due to the industry advantage in the process. Finally, because agency learning is so important to effective rate setting, programs should not be changed frequently.

33. Health Care Financing Administration, PSRO Program Evaluation, (Washington DC: Government Printing Office, 1980) and John E. Wennberg et al, "Will DRG Based Payments Reduce Costs?", op. cit., 1984.)

However effective the regulatory programs are, they will always be limited in their ability to control costs. This is because they are aimed strictly at controlling supply without changing the incentives to demand care. While changes in the organization, financing, and behavior of hospitals can result in substantial reductions in hospital costs, more fundamental, and more difficult to implement, changes in physician and consumer demand are required. However, until we can agree on acceptable standards of care, policy-makers will have to continue to focus on cost containment since it is easier to measure and less politically threatening. Once the politically easy costs have been contained, attention will shift to examining patterns of care and physician practice patterns, in an effort to realize further cost savings. Then, acceptable standards of care had better be defined, or cost savings will inevitably result in reductions in service availability, access, and quality of care.

The next chapter traces the development of hospital costs controls in Massachusetts. A state with exceptionally high costs, the problem of controls has been an issue for about ten years. Starting with an ineffective and piecemeal approach, controls have evolved into an all payer, budget based system. This transformation could not have taken

place without a realignment of the major interest groups that make hospital policy in this state. The traditional block of hospitals, and insurers was fractured as businesses faced mounting insurance premium costs. The increasing involvement of the business community in the making of policy is only one of the significant changes that has occurred in the past four years. As described in the next chapter, the evolution of the law helps to understand the law's structure and its weaknesses. We will see that many of its provisions ignore (that is, allow as passthroughs) the key sources of hospital cost increases. Such fundamental weaknesses in a law can only be understood in the context of political bargaining and negotiated solutions.

Chapter 3

Cost Containment Programs in Massachusetts

3.1 Introduction

Massachusetts' hospital costs and rates of growth have exceeded national averages for years. Because of its high costs, Massachusetts was one of the first states in the country to enact a Rate Setting Commission to control hospital costs by regulating the charges the state would pay for Medicaid services. Over time, its role expanded to include oversight of the Blue Cross-hospital contract, the control of all charges established under a charge control program, and, presently, the administration of the new prospective payment system. This chapter traces the evolution of the hospital cost containment programs in this state, from the charge control programs of the seventies, through the transition of the cost-based Blue Cross reimbursement to prospectively determined payments, and

finally, the expansion of this system to cover payments of all payers, as enacted in Chapter 372. This history is important because it forms the basis for many of the policies of the present payment system.

The second half of the chapter describes the central elements of the law and links these "solutions" to the problems of inflation previously identified. The tools incorporated into the law, such as marginal pricing and volume corridors, are also discussed to further highlight the theory behind the law's design. In summarizing the incentives of the law, I will also outline those incentives that work towards the overall objective, and those that will undermine it. Finally, the chapter compares the behavior encouraged by the law with the sources of hospital inflation. This comparison reveals the match and mismatch between regulatory intent and program.

3.2 Hospital Expenditures in Massachusetts

Trends in Massachusetts hospital expenditures have paralleled, if not surpassed, national levels of spending and rates of increase. As Table 3.1 indicates, the health care costs in Massachusetts have surpassed the national

Table 3.1 Massachusetts and National Health Care and Hospital
Per Capita Expenditures for Selected Years

	1973	1978	1980	1983	1985
U.S. Total Health Expenditures	\$453.12	\$863.01	\$1,049.07	\$1,485.95	\$1,692.90
MA Total Health Expenditures	\$586.38	\$1,033.87	\$1,282.54	\$1,773.37	\$2,098.26
Ratio MA : US	1.29	1.20	1.22	1.22	1.24
U.S. Hospital Expenditures	\$172.29	\$340.93	\$428.51	\$604.27	\$688.45
MA Hospital Expenditures	\$237.50	\$438.04	\$591.62	\$824.51	\$939.17
Ratio MA : US	1.38	1.28	1.38	1.36	1.36

Source: Anestis J. Ghanotakis, "A Report of the Funds Flow Project: Massachusetts Health Expenditures", Office of Health Policy, Executive Office of Human Services, (Boston, MA: Office of Health Policy, 1983, 1986.)

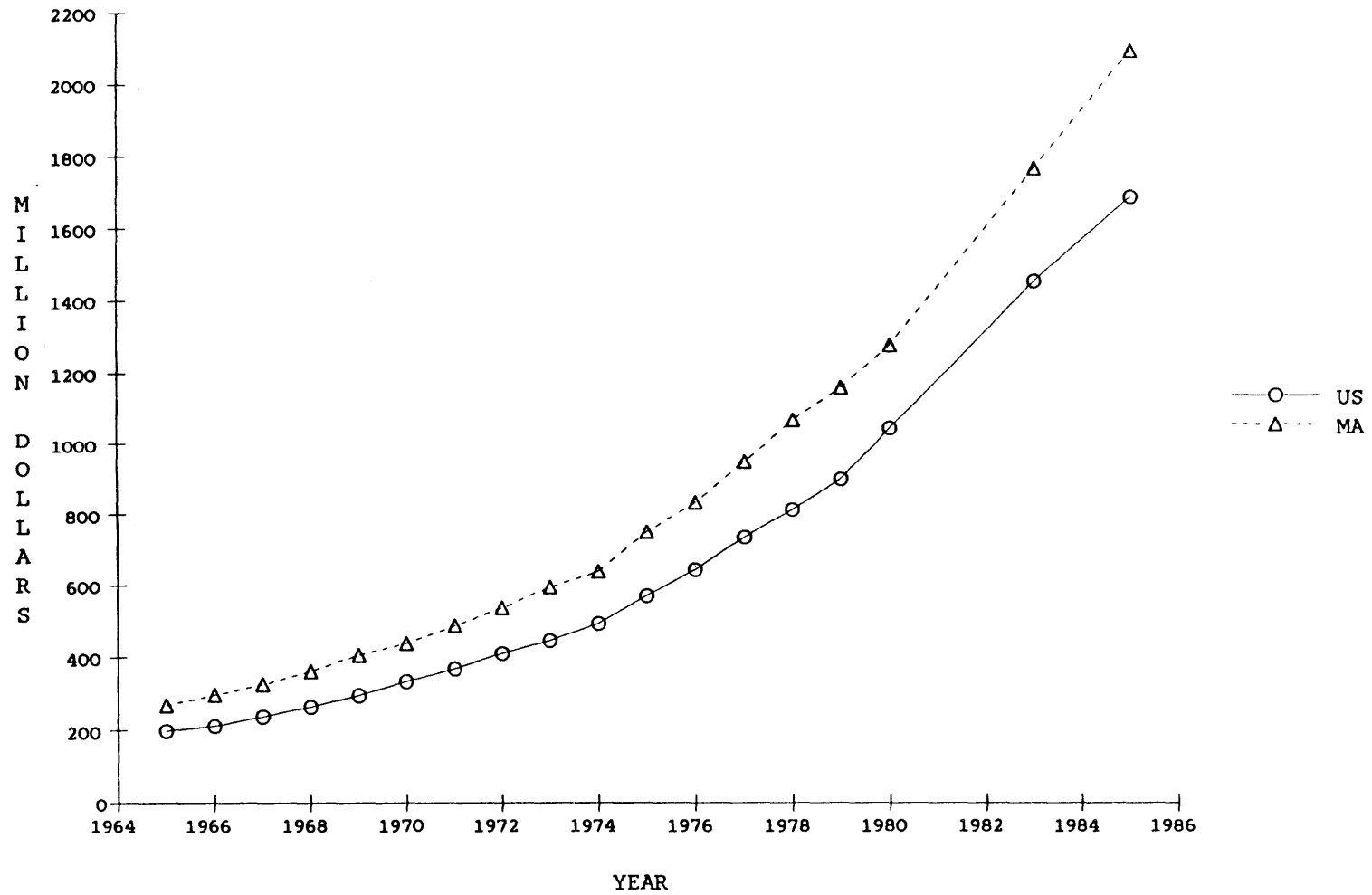
spending rates for per capita health care. Massachusetts hospital costs in 1981 were 140% of the national average, making them among the most expensive in the country.[1] On a per capita basis, hospital expenditures were 33% higher than the national average in 1981, down from 38% in 1973.[2] Figure 3.2 illustrates the comparison between national and state per capita expenditures.

These high costs can be explained in part by the resources available in this state and the prevailing practice patterns. Compared with national averages, Massachusetts has longer lengths of stay for hospitalizations, and more personnel and assets per hospital bed. Such consumption of resources has resulted in higher expenditures per inpatient day and per adjusted admission, as indicated below.

1. Liz Perlman Gallese, "Massachusetts Law Offers New Approach to Cut Hospital Costs," Wall Street Journal, August 13, 1982.

2. Anestis J. Ghanotakis, "A Report of the Funds Flow Project: Massachusetts Health Expenditures," (Boston: Office of State Health Planning, 1983), Table 77, page 110.

Figure 3.2 National and Massachusetts Per Capita Health Care Expenditures
For Selected Years 1964-86



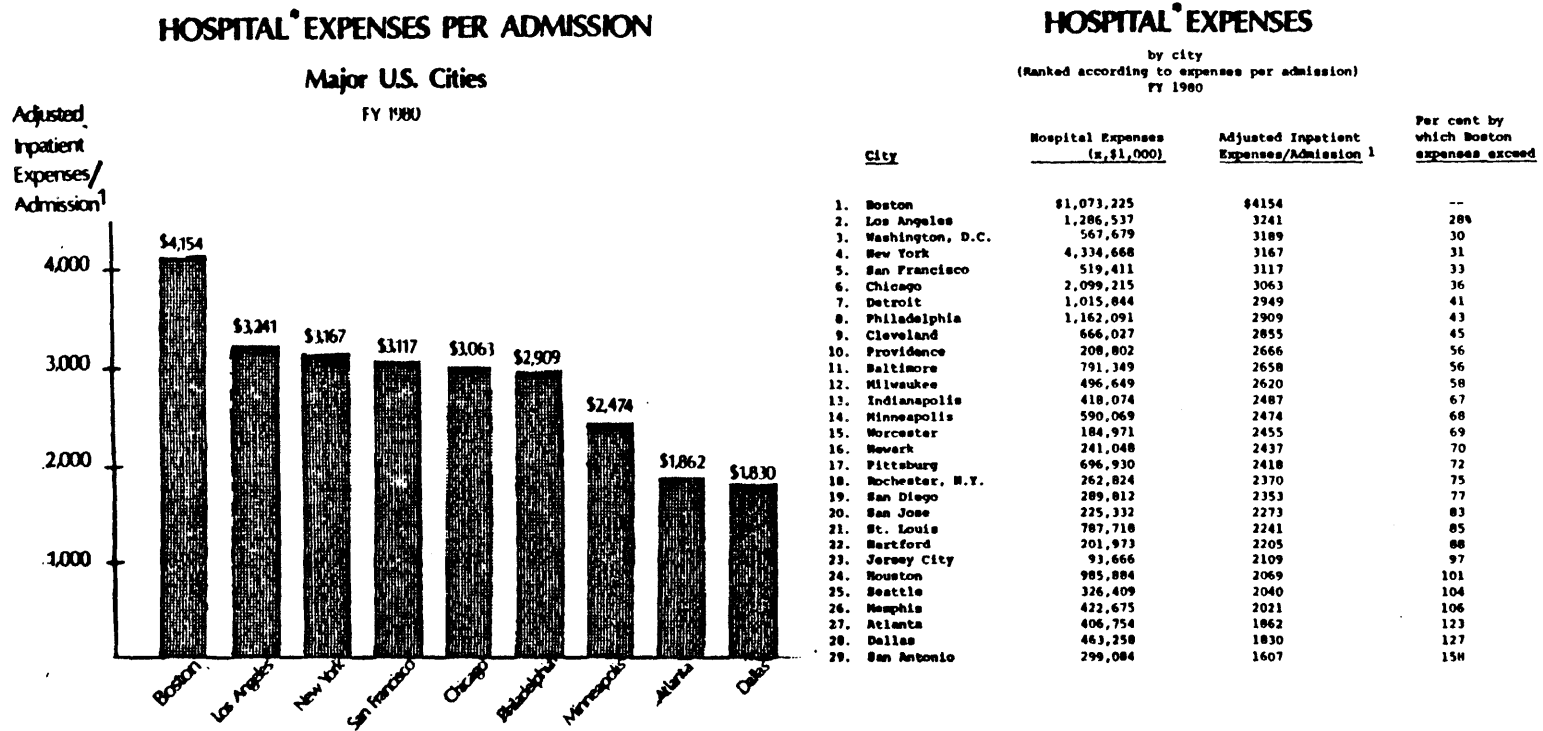
Comparison of MA and U.S. 1984 Hospital Characteristics

	U.S. -----	MA -----
% hospitals with medical school affiliation	16.2%	25.4%
Full time equivalent employees per occupied bed	4.3	5.1
Beds per 1000 Population	4.3	4.5
MD and DDS per 1000 Population	.12	.47
Average length of stay	7.3	8.6
Total expenses adjusted per Inpatient day	\$411.10	\$448.00
Total expenses adjusted per admission	\$2995.38	\$3828.19

 Source: AHA Hospital Statistics 1985 (Chicago: American Hospital Association, 1985) Tables 6,10.

In large part, these higher than average expenditures are a result of the Boston teaching hospitals. Massachusetts ranks fifth in the percentage of hospitals affiliated with a medical school, after Maryland, New York, Ohio, and Pennsylvania. As Table 3.3 depicts, Boston ranks first in total expenses adjusted per admission for all U.S.

Figure 3.3 Comparison of Hospital Expenses Per Adjusted Admission and Patient Day, By City 1980



*Non-Federal Acute Care Hospitals

¹ Adjusted Expenses are an estimate of inpatient expenditures based on inpatient revenues as a fraction of total revenues.

Source: Health Planning Council of Greater Boston, Based on AHA Data.

cities, and second in total expenses adjusted per inpatient day.[3] It is interesting to note that Boston also outranks other major medical centers such as Durham, New Haven, Palo Alto, Houston, and Baltimore.

Within the state, Boston teaching hospitals are responsible for the high average state spending and costs per admission. Boston expenditures consume 55% of the total statewide spending on hospital care, and its expenditures per adjusted admission cost 43% more than in western Massachusetts.[4]

The Enactment of Hospital Cost Containment in Massachusetts

Motivated by its high hospital costs, Massachusetts was one of the first states to enact an alternative to cost-based reimbursement to control its Medicaid expenditures. The Rate Setting Commission (RSC) was established in 1968 to set reimbursement rates for Medicaid payments and to review contracts between Blue Cross and the

3. Los Angeles outspends Boston on a per day basis because its lengths of stay are considerably shorter (by about 2.5 days), giving L.A. admissions fewer days over which to spread costs. In general, the costs of a hospital day decrease as the length of stay increases, making the first couple of days the most resource intensive.

4. Anestis J. Ghanotakis, op. cit., Tables 100 and 101, 1983.

hospitals. In 1974, the RSC was reorganized and its responsibilities were expanded to include educational, social, and rehabilitative services. Since then, the Commission has been an independent state authority housed within the Executive Office of Human Services. By 1976, its responsibilities included: 1) annual review of hospital budgets and audits, 2) determination of the Medicaid rate of reimbursement to hospitals on a per diem basis, 3) regulation of the maximum revenue (total charges) a hospital can accumulate, and 4) approval of the Blue Cross/hospital contract. Through the different payment systems, the RSC directly controlled two of the four sources of revenue for hospitals: it regulated the total revenues that could be generated from the charge payers (the commercial insurers and self pay, so called because they pay charges as opposed to costs), and it set the Medicaid per diem rates. Potentially, through its contract approval, it also influenced the content of the Blue Cross-hospital contract.

Hospital Payments and Charge Control Prior to Chapter 372

Before C.372 was enacted in 1982, the reimbursement system consisted of four separate mechanisms, one for each payer--Medicare, Medicaid, Blue Cross, and the "charge payers". Each payer has its own definitions of allowable

costs and contractual adjustments, and as a result, each pays different prices for the same services. The fragmented nature of the payment system provided incentives for hospitals to shift costs rather than initiate cost efficiencies in the provision of care. These incentives arose due to differences in payment rules and levels of reimbursement. From a hospital's perspective, underpayment by one payer would be cross-subsidized by another payer such that total costs were met. In addition, different definitions of costs and cost reports allowed hospitals to maximize revenues from each payer by allocating expenses between departments differently on each payer's cost report with revenue maximization as the guiding principle. Despite numerous differences between the systems, one important common characteristic was that all payments were based on costs actually incurred at the hospital.[5] As discussed previously, this cost-based methodology provided little, if any, incentive to control hospital costs. In fact, cost containment efforts penalize hospitals that had already

5. Even charges were based on actual costs. Charge levels were determined in the following way: a) the hospital's "reasonable financial requirements" (RFR) were determined based on total actual costs, b) revenues from Medicaid, Medicare, and Blue Cross were estimated and subtracted from the RFR (a), and c) this difference was the amount to be met by the charge payers.

pursued efficiencies since these efforts would reduce hospital revenues.

Although knowing Medicaid's and Medicare's past systems of payment is important for understanding the new law's effects on both, my work does not focus on these issues and I will only briefly describe these payment systems.[6] Medicare, a federally financed entitlement program for the elderly and disabled, pays on the basis of "reasonable costs," having borrowed this concept from Blue Cross. Since its first enactment, Medicare has increasingly imposed restrictions on its liability, using coinsurance, deductibles, and cost limitations. Medicaid is jointly funded by state and federal monies (in this state the split is about 50:50) and the state payment methodologies are subject to annual Health Care Financing Administration approval. For many years, Medicaid paid hospitals an all inclusive per diem rate based on prior year costs. A variety of cost limitations held Medicaid payments to levels below the actual costs incurred by hospitals. Hospitals

6. Outlines of these payment systems can be found in Alfonso Esposito, "Abstracts of State Legislated Hospital Cost Containment Programs," Health Care Financing Review, December 1982, Vol.4, No.2, pages 144-145, and Massachusetts G.L. c.6A, ss 31-48 for Public Assistance (including Medicaid.)

charge this "shortfall" to the other payers that did not have limitations on the definitions of reimbursable costs--the charge payers.

The characteristics of the other two payment systems, those of Blue Cross and the charge payers, are worth outlining since their interaction sparked the enactment of Chapter 372 and significantly shaped its terms.

Blue Cross is the major insurer in this state, with over 75% of the private insurance market. It provides about 25% of the hospitals' income, making it an important source of revenue and giving it a large role in determining and containing costs. The terms of reimbursement between Blue Cross and the hospitals are set out in a hospital agreement, a contract privately negotiated with the Massachusetts Hospital Association (an industry sponsored business and lobbying association which acts as the hospitals' representative) every three years. The contract specifies allowable cost definitions, adjustments, utilization review criteria, and other administrative procedures. Because it is a negotiated agreement, compromise is an integral part of the final product, with neither party fully dictating its terms.

Blue Cross views this contract as critical to its unique role in the health care system. In its enabling

legislation, (Massachusetts G.L. c.176A) Blue Cross is mandated to pay the lower of costs or charges. Charges have run 10-17% higher than costs, thereby giving Blue Cross a substantial marketing advantage over commercial insurers.[7] Moreover, the gap between charges and costs has been steadily increasing over the past ten years due to government "shortfalls"--that is, Medicaid and Medicare payments do not fully cover their costs. In order to make up for these losses, hospitals "overcharge" the charge payers. This type of cross-subsidization is both permitted and required if hospitals are to break even financially. Without a contract governing the terms of its payments, Blue Cross becomes another charge payer (paying the 10-17% higher charges) and its valuable marketing advantage vis a vis the commercial insurers disappears. Thus, Blue Cross saw its contract as the single most important mechanism in maintaining its large market share. At the same time, hospitals enjoy the favorable reimbursement practices under a Blue Cross contract. For a quarter of its business, the reimbursement is both liberal and prompt.

7. Charges could theoretically be lower than costs if a hospital board decided to set its charges lower than its actual costs for the year. The difference could be made up with monies from foundations, philanthropy, or reserves.

The reimbursement practices of Blue Cross result in it paying more than its "fair share" for services. By "fair share" I mean that if Blue Cross subscribers in total consumed 25% of a hospital's services, Blue Cross reimbursed the hospitals more than 25% of its annual costs. There are three important reimbursement policies that account for this "overpayment." First, Blue Cross pays for price level depreciation, that is, the depreciation paid is adjusted annually for inflation. This practice allows hospitals to buy replacement equipment at new market prices when the asset expires its useful life. Second, the definitions of allowable costs are relatively liberal. Furthermore, hospitals have draft writing systems that allow them to write themselves checks for services provided to Blue Cross subscribers. This mechanism provides payment for services upon discharge, with no working capital needs. Finally, Blue Cross pays for a portion of the hospitals' bad debt and free care. Thus, despite the discount Blue Cross has relative to the charge payers, Blue Cross payments exceed the costs for services provided to their subscribers.

The charge payers (the commercial insurers and the self-pay patients) have their rates indirectly, but effectively set by the RSC. That is, the RSC sets limits on the total revenue a hospital could receive from charge

payers but does not establish charges for specific services. So, for example, a hospital can be told that in year n that it can generate \$20 million in charges, but exact service charges--like the price of an x-ray--are not regulated. Prior to charge control legislation, total allowable charges were set by the RSC to provide hospitals with adequate revenues to operate. The methodology resulted in significant cross-subsidization between the private and public sectors because underpayments from Medicaid and Medicare were included in the determination of the allowable revenues to be met by the charge payers. As public programs placed increasingly restrictive definitions on reimbursable costs and delayed their payments, the remaining costs were shifted to the charge payers. Without contractual protection limiting the definitions of reimbursable costs, charges rose to meet the shortfall from the government payers.[8] In addition, the rates paid by the charge paying group also covered the remaining costs of uncompensated care. (Remember, Blue Cross had agreed to pay for only its

8. The shortfall costs are generated primarily by Medicaid, which pays only about 85% of the costs associated with the services provided to Medicaid recipients. Medicare, whose definitions of costs are very similar to those of Blue Cross, pays about 96% of its costs. These estimates were provided by Paul Swoboda, Manager of the Program Development Unit of the Rate Setting Commission, Boston, MA.

share--about 25%-- of the costs of bad debt.) Although the state probably was not motivated to protect the charge payers' interests, it was very concerned about the eventual impact of rising costs on its own Medicaid budget since these cost increases eventually were built into subsequent calculations of Medicaid rates.

The Commission enacted a charge control program in 1975 (Chapter 424, later modified and finalized in the Chapter 409 regulations in 1976). Under the C.424 and subsequent C.409 regulations, the hospital submitted its annual budget to the Commission for review and establishment of "total patient care costs." These costs included the reasonable financial requirements of the hospital for providing patient care costs.[9] After subtracting the projected revenues from Medicaid, Medicare, and Blue Cross, the hospital's "charges to be met by charge payers" were established. As long as hospital revenues from the charge payers did not exceed the approved amounts, hospitals had complete freedom in setting their charges for individual services.

9. The reasonable financial requirements included an operating requirement (base year costs adjusted for inflation, volume, costs beyond control, and new services), capital requirements (historical cost depreciation for buildings and fixed assets, and interest expenses), and a working capital allowance.

While somewhat restrictive, the regulations did not eliminate the cross-subsidization between public programs and the charge payers. Charge payers continued to absorb the majority of the costs of bad debt, free care, and "contractual adjustments", most importantly the underpayments by Medicaid.[10] Thus, charges continued to rise at a rate faster than the increases in hospital costs, particularly since the program did not tightly constrain charge increases and had no compliance mechanism. Charges rose 26% in 1976, 22% in 1977, and 17% in the third year of charge control.[11] Disappointed with these results, the RSC contemplated options for more effective cost controls.

Though systemwide reform was necessary, it was not politically feasible in the short-run. In addition to strengthening its charge control program, the Commission needed to control a greater proportion of the hospital

10. There has been considerable disagreement over the true costs of treating Medicaid patients. Hospitals contend that the 80-85 cents on the dollar that Medicaid pays for services represents underpayment. Advocates of the Medicaid program argue that its enrollees are less intensive patients to treat and that hospitals consistently deliver less services to Medicaid patients. Without adequate charge and case mix information, the actual costs, and hence underpayment issues, remain subject to debate.

11. Rate Setting Commission, Eighth Annual Report (Boston: Rate Setting Commission, 1982.)

sector's income. The Medicare program, being a federal program, was untouchable by the state agency. One party to pressure was Blue Cross. The RSC decided to use its authority to approve the contract in pursuing its goals of systemwide cost containment and reform.[12]

The Commission was aware that the Blue Cross-MHA contract was due to expire in September of 1980. Prior to negotiations, the RSC developed and forwarded to both negotiating parties a set of criteria by which it would judge the successor contract (Hospital Agreement 28). One important criterion would be the degree to which the contract moved away from cost-based reimbursement towards a prospective payment system. The Commission hoped that by having three of the four payers on mandatory programs of cost controls, significant reductions could be achieved. Both Blue Cross and the MHA flatly disputed the unprecedented attempt at public involvement in their private negotiations and proceeded to ignore the guidelines.

On another front, the RSC proposed a stricter charge control program. The hospital industry vigorously opposed the regulations and successfully warded off their

12. Interview with Commissioner Peter Hiam, then-Chairman of the Rate Setting Commission, April 12, 1982, Boston.

implementation. As a compromise, the RSC gained two concessions: the Secretary of Human Service would file legislation to govern the charge control program in FY1981, and a Joint Legislative Executive Committee would be convened to develop a prospective payment system. The RSC replaced the proposed stricter charge control with a statewide 11.5% cap (equivalent to the projected inflation rate for that year) on the increases in hospital charges, excluding changes in volume and costs beyond control (Chapter 540.) Compliance was enforced by having the RSC roll back hospital charges on a pro-rata basis at each hospital in regions where increases exceeded 11.5%.

With the future of the charge control program resolved, the hospitals and Blue Cross negotiated a successor contract very similar to its predecessor. The criteria developed by the RSC had not been addressed and the fundamental problems of cost-based reimbursement remained unchanged. In fact, the RSC estimated that the new contract "would result in increased payouts to hospitals, without sufficiently tightening up the relatively open-ended cost passthroughs of the past contract."^[13] To the parties' surprise, the RSC

13. Letter from Peter Hiam, Commissioner, to David Barrett, Chief Negotiator for the MHA, December 12, 1980. Boston: Blue Cross Files.

rejected the contract in December 1980.

An interim contract (HA-28i) was quickly approved to prevent Blue Cross from reverting to charges and to extend the period of negotiations. With assistance from the RSC and hired expertise, a prospective budget based system was designed over the next five months. How the two parties reversed their positions and sold the idea to their organizations is interesting to analyze.

Blue Cross' acceptance is easy to understand. For them, the most important characteristic of a payment system was not whether or not it was prospective, but rather its effect on their discount relative to the charge payers. Pressure on Blue Cross to hold down the costs of their insurance premiums was mounting from both the Division of Insurance and the business community. The Division of Insurance had recently rejected two proposed premium hikes. Several of Blue Cross' major group accounts were threatening to take their business elsewhere if Blue Cross could not keep its costs down. Within Blue Cross, it was acknowledged that a new reimbursement system was required to realize substantial savings. Moreover, with the RSC intent on having a prospective system and able to deny contract approval, it was only a matter time before Blue Cross would have to modify its payment practices.

The MHA, on the other hand, had much harder decision ahead, making the negotiating process slow and often disrupted. A prospective system would limit Blue Cross liability to the pre-determined budget and subject the hospitals to the risks and rewards of living within the budgeted amount. Some of the administrators realized that they did not have many options. Without a contract, the hospitals would lose many of the advantages of Blue Cross payments, especially price level depreciation and prompt payment. Another factor was that if Blue Cross reverted to paying charges, the RSC might try to implement even stricter charge control. The MHA did not know if it could defeat another set of proposed regulations since it had spent considerable political resources the summer before dismissing the previously proposed charge control regulations. Public perception of the hospitals was that they were stonewalling important decisions, leaving them with few allies. In addition, the MHA recognized that negotiating with Blue Cross would be more beneficial to the hospitals than dealing with regulatory purview of the RSC in a no-contract situation. After all, Blue Cross wanted a contract at least as much as the hospitals. Lacking better options, the hospitals were drawn into negotiations. These negotiations took until July 1981 to produce an approved

prospective system.

While Blue Cross and the MHA were negotiating the new payment system, the RSC extended the one year cap (under Chapter 540), which was due to expire in September 1981 since an alternative payment system did not appear to be forthcoming from the Joint Legislative Committee.[14] The successor cap (Chapter 432 of the Acts of 1981) was more stringent in controlling charge increases, but allowed for many items to be excluded from the calculations.[15]

As required by Chapters 540 and 432, the Joint Legislative Committee considered several proposals for a uniform prospective payer system. The Committee could agree on several broad principles but could not support any of the specific proposals that had been introduced by the MHA, Blue

14. These regulations were designed to narrow the gap between costs and charges, reduce the large revenue cushions, reduce revenue shortfalls that were passed through to subsequent years bases, and offer rewards for cost cutting and penalties for overspending. Their intended impact was to hold hospital increases to the projected rate of inflation (10-13%).

15. Of note was a productivity factor aimed at improving hospital efficiency by reducing the inflation allowance by 1.5 percent. Although the cap was set at 9.57% cap, FY 82 total revenues increased 12.34 per cent above FY 81 due non-inflation adjustments for new services, costs beyond control, and volume. Details of the provisions in Chapters 540 and 432 can be found in the RSC Eighth Annual Report (Boston: Rate Setting Commission, 1982), page 23.

Cross, the Life Insurance Association of America (LIAA, the major lobbying effort of the commercial insurers), the Massachusetts Business Roundtable (representing the major businesses in the state), and the RSC.[16] Without agreement on any specific proposal, the Committee reached a deadlock and voted to disband in April 1982 without making any recommendations.

Concurrently, Senator Foley, Majority Leader, began lobbying for a "full payer" bill that had been authored by the Life Insurance Association of America.[17] This was not the first year that such legislation had been introduced. Since 1978, Blue Cross (and, depending on the bill and its sponsor, the MHA) had successfully warded off the annual full payer bills which threatened their discount. By February 1982, it was clear that a full scale attack by Blue Cross on the Senate Bill 495 was required for its defeat. Sensing possible defeat, Blue Cross was drawn into negotiations with the other principal participants,

16. The broad goals included: prospective determination of costs and charges, annual budget review, uniform definitions of reasonable financial requirements (to the extent possible), payments based on the proportional share of total hospital charges, and incentives to contain costs.

17. The term "full payer" is generally used to refer to any prospective payment scheme which requires uniform definitions and participation of all payers.

including the MHA, the LIAA, and Medicaid to design a full payer system.

One alternative to the full payer bill was to expand and modify the Blue Cross-MHA contract, Hospital Agreement-29 (HA-29), to cover payments from all payers. While Blue Cross was basically satisfied with, or at least institutionally committed to, its contract, other participants were not so agreeable to its provisions. The RSC thought the terms (like the rewards for decreases in utilization and the payment of price level depreciation) were too liberal, while the MHA was concerned about the limitations a uniform system would imply for hospital revenues and their opportunities to shift costs. The commercial insurers wanted to reduce the discount Blue Cross received and expand the contractual definitions that limited Blue Cross liability for non-subscriber services (effectively insulating them from cost shifting.) Medicaid's budget could not be expected to increase by enough for them to pay their full share of costs, yet from the hospitals' perspective, their underpayment had to be met by the other payers. Finally, the business community, represented by Massachusetts Business Roundtable, wanted lower costs of doing business in Massachusetts (lower costs of health insurance.) It thought that if the hospital

industry were made more efficient and run like other businesses, premiums increases could be slowed down.

Such partisan interests and pocketbooks were not easily melded and Senate Bill 495 underwent numerous revisions. The Massachusetts Business Roundtable played a key role in holding the negotiations together and pressuring various actors to come back to the bargaining table after numerous breakdowns. By August, a compromise bill was passed in the Legislature. The payment system incorporates the provisions of the Blue Cross contract and adds to this specifications for the determination of charges and Medicaid rates based on BC prospective payment system. Once a waiver from the Health Care Financing Administration for Medicare and Medicaid payments was approved, the participation of these two important revenue sources (combined about 55%) was secured and the law was enacted in October 1982.

The new system attempts to correct perennial problems such as the cost-shifting and inequities between payers, and the perverse incentives to increase volumes and costs of services. Table 3.4 outlines the central differences between the traditional cost-based reimbursement and the prospective system. Though heralded as innovative (and compared to cost based reimbursement it was), an examination of the law in detail will reveal the degree to

which it solves the problem of containing costs.

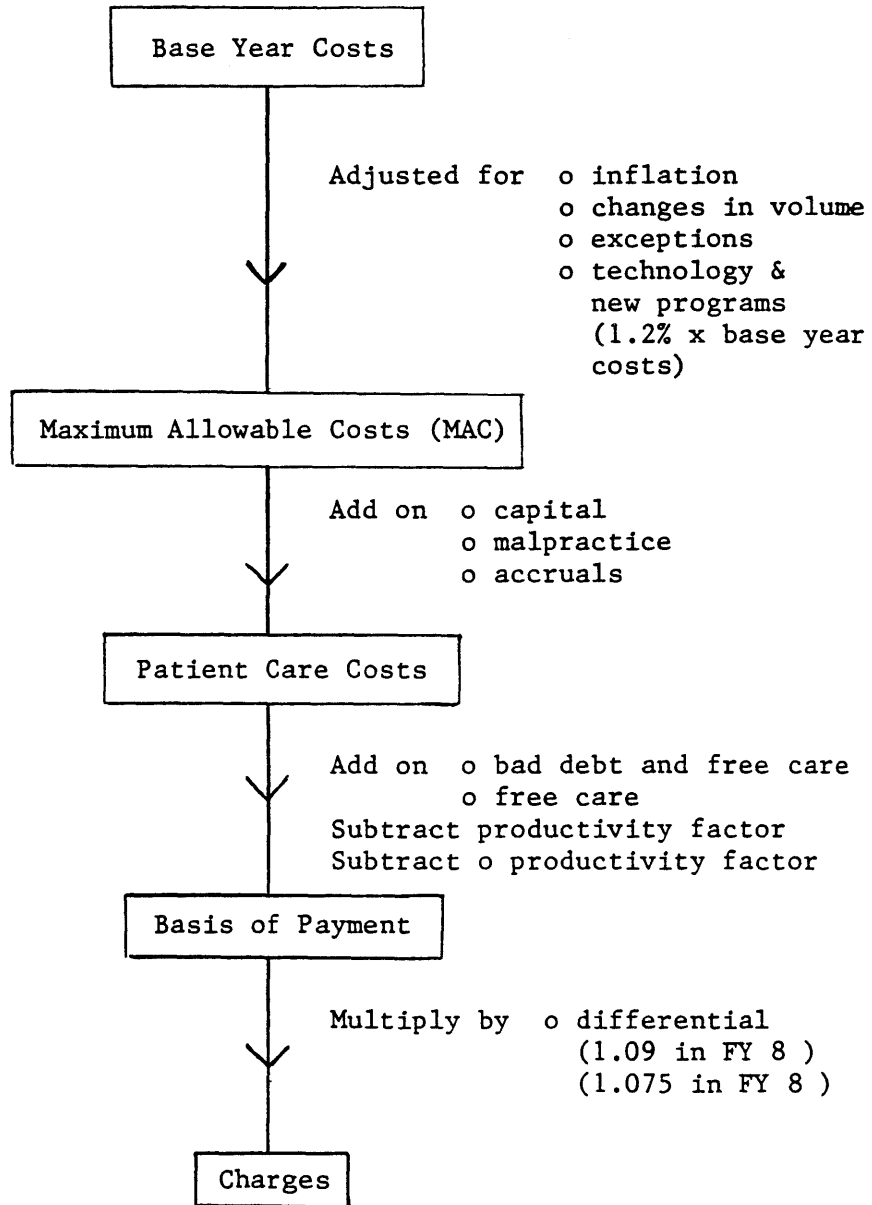
Table 3.4 Comparison of Possible Incentives Under
Cost-Based Reimbursement and Chapter 372

Incentive	Cost-Based Reimbursement	C. 372
increases admissions	yes	no
increases length of stay	yes	no
increases intensity of services	yes	no
encourages inefficiency	yes	no
limits new technology	no	maybe
encourages discrimination against certain patients	no	yes
hurts teaching programs	no	maybe
results in significant cost shifting	yes	no

Description of Chapter 372

As mentioned above, Chapter 372 is based on the terms contained in the existing hospital-Blue Cross contract, Hospital Agreement-29 (HA-29). Central to this contract, and now all payments, is a concept of "maximum allowable costs" or MAC. Each hospital constructs a budget based on 1981 actual costs, adjusted for inflation, changes in volume, base year adjustments (which include costs not in place for a full year and are therefore annualized for the first year), and exceptions (including most importantly costs associated with Determination of Need projects, but

Table 3.5 Development of a Hospital's Allowable Costs and Total Revenue Cap Under Chapter 372



also a wide variety of possible costs (discussed in a following section on the exceptions), to arrive at the hospital's MAC. Costs outside the MAC (including depreciation, interest, accruals, malpractice, free care, and bad debt, which are all reimbursed at costs) are then added to arrive at the "basis of payment" (BOP). A productivity factor (amounting to 7.5% over five years) is subtracted from the total basis of payment to increase efficiency. This basis of payment is then used to calculate each payer's liability. Essentially the BOP is divided between the payers according each's percentage of total hospital charges. Charges are determined by increasing the BOP by the agreed upon fixed differential between BC and the charge payers. These calculations are summarized in Figure 3.5.

Under this system, hospital revenues are capped to the adjusted 1981 actual costs. Hospitals are at risk for overspending and conversely, may keep any savings if their costs are below the MAC. Surplus revenues generated from excessive charges are deducted from the subsequent year's allowable total charges, thereby incorporating a compliance mechanism for the first time in charge control. This budget-driven payment system differs sharply from previous reasonable cost reimbursement that guaranteed hospital

revenues and left the payers at risk for cost increases. Previously, hospitals did not benefit from reduced costs, giving them no real incentive (except increasingly competitive forces) to curb inflationary tendencies inherent in a reimbursement system. Conversely, Chapter 372 ties the level of hospital payments to the hospital's behavior, shifting the locus of risk from the payers to the providers. Hospitals incur the costs or reap the benefits of their decisions.

By determining in advance the payment levels for hospitals, the system encourages hospitals to decrease volumes of services, both by decreasing admissions and decreasing lengths of stay. The specific incentives of the law are discussed in the section on volume adjustments. The system also eliminates the rewarding of increases in intensity of services and inefficiencies. The fixed nature of the payments may, however, limit hospitals' ability and to treat expensive cases.[1] Similarly, the original law may result in increased discrimination against un- and under-insured patients. The effects on teaching programs could also be harmful as administrators try to reduce their

1. Although hospitals can apply for adjustments to their allowable costs based on increases in case mix intensity, the burden of proof falls on the providers.

overhead costs.

Although C.372 did much to reduce the inequities between payers, it did not eliminate them. Some of these differences are based on lower administrative costs incurred by the hospital for certain payers, like to Blue Cross. Others are due to federal limitations on allowable hospital expenses.[2] For example, Blue Cross continues to get a discount from charges based on its underwriting and business practices that reduce hospital administrative costs, reduce hospitals' need for working capital, and limit bad debt and free care costs.[3] Medicare regulations continue to govern payments for certain services such as home health, renal dialysis, and malpractice costs. It will pay for only the bad debt associated with its program (due to deductibles and coinsurance) and it will pay only a limited amount for free

2. For FY 83 and 84, the liabilities of each of the payers were calculated in exactly the same way as in FY85 except: (1) price level depreciation, eliminated for all payers in FY85, is not an allowable expense for Medicaid or Medicare and only therefore only historical straight line depreciation is paid, and (2) Medicaid continued a per diem methodology for one year (FY83) before shifting to a percentage of charges, like the other payers.

3. Set by study commission, this differential was established at 9% for FY85 and 7.5% for FY86 and FY87. It components are .5% for reductions in working capital, 2% for reductions in patient care costs, and the remainder for limiting bad debt and free care. Commercial insurers and HMOs can also qualify for discounts from charges if their business practices result in similar savings to hospitals.

care (up to a statewide limit of 1.4% of total hospital basis of payment.) Medicaid pays its share of discounted charges (due to its less intensive use of services and its "historical discount") and, as before, will not pay for bad debt or free care.[4] The costs of bad debt and free care are shared between Blue Cross and the charge payers. Finally, note that price level depreciation has been eliminated; only historical straight line depreciation costs will be allowed.[5]

Inflation Adjustments

The first adjustment to the base year costs accounts for inflation. The purpose of this adjustment is to passthrough the increases in costs of the inputs to hospitals. This adjustment assumes that hospitals can not control the costs of inputs and therefore the law should not hold hospitals responsible for increases considered to be beyond the hospital's control. Though reasonable in concept

4. It will pay for free care only in hospitals where bad debt, free care, Medicare, and Medicaid comprise more than 68% of the hospital's revenue. Although targeted at Boston City Hospital, every year a handful of other hospitals qualify for Medicaid payments for free care.

5. Paying only historical straight line, instead of the previous price-level depreciation will save approximately 2% of total hospital basis of payment, or about \$80 million.

(hospitals after all can not control the health of the economy or the costs of many of its inputs), the exact inflation methodology results in what I consider to be a generous definition of "controllability".

The general Consumer Price Index is not used to adjust for inflation: it is assumed that hospitals buy a different mix of goods than the "market basket" included in the construction of this index. Rather, a composite index was designed specifically to be used for the inflation factor.[6] The index is a composite of thirty-one cost categories, each with its own inflation proxy. For example, lab and surgical supplies, electricity, and food are three of such categories each having its own proxy. These 31 proxies are applied to the costs of each of the categories at each hospital, resulting in a hospital specific inflation index.[7]

The methodology treats labor and non-labor proxies separately for two reasons. First, non-labor components

6. The inflation adjustment is housed within HA-29 and incorporated into Chapter 372 through its definition of basis of payment.

7. For a detailed description of the methodology see Rate Setting Commission, "Statement on the Data Resources, Inc. Composite Inflation Index for Hospital Signatories to Hospital Agreement 29," (Boston MA: Rate Setting Commission, October 12, 1983).

can, and should, be adjusted at year end to reflect the actual inflation in those categories of costs for the year. For example, if the estimated inflation rate for lab supplies was 14% but the actual increase was only 12%, then the proxy should be adjusted downwards to reflect the real inflation rate. Such downward adjustments are not possible for labor categories, where contracts and salary commitments are made in advance for the year. Second, hospitals have successfully argued that many of its labor requirements are so highly specialized that the inflation adjustments in these cost categories can only be based on the industry itself.

Non-labor proxies (applied to material and service cost categories) use general economic indicators such as producer price indices, consumer price indices, and indices generated by the National Income and Product Accounts. The use of general indicators implies that the hospitals are held to general inflation rates for inputs that are not intrinsic to its industry. Furthermore, the adjustments at year-end prevent hospitals from profiting in years of lower-than-projected inflation and, conversely, do not put them at risk in years of higher-than-projected inflation.

Labor related cost categories account for about 60% of the industry's costs, and, therefore, are an important

determinant of the overall inflation allowance. The inflation methodology uses what is termed a "fixed labor component", that is, the projections made prior to the beginning of the fiscal year for salaries, wages, and fringe benefits can not be adjusted downward at year-end. The proxies can be adjusted upward if inflation has been under projected. While in theory this allows hospitals to make cost of living adjustments to their employees, the contract does not require that these adjustments be passed onto their workers.

Labor categories use two different proxies: Average Hourly Earnings (AHE) and Employment Cost Index (ECI).[8] [9] These proxies differ in important ways, most notably in the bases that are used to derive the indices. The AHE base includes only hospitals in their classification group and therefore results in the passing through the costs of these labor categories. The hospitals have argued that this is

8. Average Hourly Earnings proxies are used for six of the ten labor categories, including technicians & specialists, registered nurses, licensed practical nurses, physicians, interns & residents, and non-physician practitioners.

9. Employment cost indices measure changes in a fixed set of labor costs for a variety of related occupations that have been aggregated across all industries. The index is used for those positions that are easily transferred to non-hospital sectors, including management & supervision, aides & orderlies, clerical, and hotel and food service workers.

appropriate since this group has specialized, non-transferrable skills to non-hospital sectors of the economy. Except for maybe the residents and interns, I find this argument implausible.

Volume Adjustments

The purpose of the volume adjustments is twofold: to adjust the base year costs for increases in volume, and to encourage specific reductions and shifts in utilization. The law includes a number of incentives intended to encourage hospitals to contain costs, reduce their utilization of resources, and shift inpatient services to the outpatient department. Of primary importance is the fact that hospitals whose actual costs run below their projected MACs may keep the difference, while hospitals overspending their MACs must absorb any incurred losses. Thus, hospitals which can reduce the average length of stay or deny the marginal admission will reduce their actual costs below the budgeted amount and be able to keep the difference as profit.

Reductions in services, specifically inpatient days and the use of ancillary services, are rewarded through a similar budgeted versus actual volume comparison. Payments are made based on a budgeted volume (the previous year's

actual volume), regardless of substantial decreases in utilization (down to a certain level).[10] Therefore, hospitals have an incentive to reduce utilization and still get paid as if volume had stayed at the previous higher levels. The mechanics of these incentives involve the application of marginal cost pricing schemes to volumes outside of certain ranges. Within the specified range, the "corridors", payments are made as if volume had remained unchanged, thereby encouraging reductions. For example, a decrease in inpatient days is rewarded because the hospital receives the same revenue as if the volume had remained unchanged. Conversely, the law discourages, or at least, is neutral to, increases in inpatient days by the payment of marginal costs (50% of full unit average costs.)

Figure 3.6 illustrates the volume corridor and marginal cost pricing schemes used to adjust inpatient routine costs. In the case of routine inpatient volume, a hospital can experience drops of up to 7% in volume from the previous year before payments are reduced. Any increase in volume is paid at 50% of full unit costs, as are decreases beyond the seven percent. Appendix A provides an example of a volume adjustment calculation. Similar volume corridors and

10. Using the prior year volume as the starting point resulted in several problems outlined in Chapter 5.

Table 3.7 outlines the specific tools used by Chapter 372 to encourage reductions and shifts in resource utilization. Although each of the incentives uses slightly different marginal costs and varying sized corridors, the principles remain the same. To encourage decreases in a service, a "downside corridor" allows for the payments to remain the same for decreases in volume. To encourage the use of outpatient services, the corridors are extended to apply to increases in volume. For example, outpatient ancillary

Result: For reductions in volume of up to seven percent from the previous year, payments are made as if volume had remained unchanged. For any increase, or for decrease beyond seven percent, only 50% of full unit costs are paid for those units beyond the "corridors".

Change in volume from prior year	Cost
+ %	Full Unit Costs
0 %	50% of Full Unit Costs
-7%	Full Cost Paid

Figure 3.6 Corridors and Marginal Cost Pricing Applied to Inpatient Routine Care

marginal cost pricing schemes encourage reductions in the use of ancillary services, emergency room, and clinic visits, and increases in day surgery.

Table 3.7 Volume Incentives Under Chapter 372

Targeted Volume	Measure	Marginal Cost Pricing Scheme	Boundaries of the Corridors Beyond Which MC Pricing Applies	
			Volume Increases	Volume Decreases
Inpatient Routine	General Service Units (1): Admissions if ALOS is declining Days if ALOS is increasing (3) ICU: days Newborn: days	50% of full unit costs	0%	7%
Inpatient Ancillary	HURM units (2)	60% of full unit costs for 0-4% increase 30% of direct costs + 15% indirect costs for increases beyond 4%	4% annual automatic increase	No lower bound
Outpatient Ancillary	HURM units (2)	60% of full unit costs	2%	5%
Clinics and Emergency Room Visits	Visits	60% of full unit costs	0%	2%
Surgical Day Care	Minutes	80% of full unit costs for 0-3% increase 100% for increases beyond 3%	3%	3%

- (1) General Service Units include medical, surgical, pediatric, and maternity days
- (2) Statistics as specified in the Hospital Uniform Reporting Manual. Relative value units (RVUs) are used for radiological services and College of American Pathologists Workload Measurement Units, or CAP units, are used for laboratory services.
- (3) The incentive is careful not to encourage poor patient management practices by using length of stay to define the measure of inpatient volume. Because length of stay is a function of both days and admissions, changes in LOS could be due to relative changes in one or the other. A decrease in LOS could be due to either a relative increase in admissions or a relative decline in days. All factors being equal, increasing admissions are not a desirable outcome. Therefore, admissions are used to measure changes in volume if LOS is decreasing. Conversely, an increasing LOS is due either to an increase in days or a decrease in admissions. In this case an increase in days solely due to the payment system is not an acceptable policy outcome. Thus, days are used as the measure in hospitals with increasing LOS.

volumes can increase by two percent before marginal pricing is applied, even though the costs to the facility would surely be below the average costs (equivalent to 100% marginal costs.) Similarly, a generous 80% marginal cost pricing is applied to increases up to 3% in day surgery and 100% marginal costs are paid for increases beyond three percent. Another point to notice is the adjustment made for inpatient ancillary costs--it guarantees an automatic 4 percent increase in inpatient ancillary costs, which at the 60% marginal costs paid, translates to a straight giveaway of an additional 2.4% for ancillary costs (about half of the total inpatient costs.)

Table 3.7 also indicates a variety of performance measures by which to evaluate C.372. Each of these incentives can be examined to see if the provision in the law was effective or not. Specifically, we will want to determine if: a) total inpatient volume was reduced, b) inpatient ancillary usage decreased, c) outpatient ancillary usage increased, d) day surgery minutes increased, e) clinic and emergency room visits decreased.

The Exceptions

The last adjustment made to the base year costs before arriving at the Maximum Allowable Costs is for

"exceptions". A listing of the possible exceptions, though tedious, clearly displays the potential loophole that this category provides. Exceptions may include:

- (a) "costs beyond control": capital and operating costs associated with Determination of Need projects or accreditation reviews, mandated costs due to new laws, regulations, or court orders, and disaster losses,
- (b) what looks like a miscellaneous category: emergency medical systems, medical training programs, costs associated with mergers and corporate reorganizations, costs and volume due to a hospital closure in the hospital service area, and changes in shared services,
- (c) volume and case mix changes: changes in the mix of inpatient and outpatient services, a shift in the mix of medical and surgical patients, changes in the age and health status of the patients seen, departmental volume increase in excess of 4% where the variable allowance may be inadequate, general changes in the case mix, regionalization of services, and HMO affiliations,
- (d) changes in factor costs not accounted for in the MAC computation: elimination of grant revenues which were offset against operating costs in the base year, wage parity and non-competitive positions in the labor

force, significant increases in the costs of an input not fully adjusted for by the inflation proxy, shifts in the processing costs from Blue Cross to the hospitals, costs associated with experimental programs, and any administrative costs associated with the new contract.[11]

The law does not specify what kind of documentation is required in an application. In the first two years of the law's operation, exceptions were approved by Blue Cross. Denials, if involving over \$10,000, may be appealed to the MAC Exceptions Review Board. This board consists of two representatives each from Blue Cross and the MHA, and three independent professionals jointly selected by these two parties. Once approved, these costs are included in the MAC once a full year's actual cost data are available. After 1984, this responsibility was shifted to the Rate Setting Commission, at the initiation of Blue Cross. These exception approvals apparently had strained relations between the Blue Cross and the hospitals. Uncomfortable with this more regulatory role over the hospitals, the insurers transferred this task to the Commission.

11. Blue Cross of Massachusetts, Inc., Hospital Agreement 29, Section IV(A)(4)(d)(v), (Boston: Blue Cross of MA, Inc., 1981), pp.39-40.

Productivity Factors

The purpose of the productivity factors is to increase efficiency within the hospital industry. Basically, the total allowable costs are determined and then squeezed by the mandated productivity factor. This provision was included at the insistence of the Massachusetts Business Roundtable. The productivity factors are applied to the liabilities of each payer so as to reduce their payouts by the percentages indicated below for each of the six years of the law.[12] Combined, the factors result in a mandated savings of 7.5% in the basis of payment, or approximately 1.25% per year.

12. The reason that there is a "timetable" for application of the factors is because Blue Cross already had a contract with the hospitals dictating the terms of its payments and it did not include a productivity factor. Therefore, it does not have productivity applied to its liability until the old contract expired and the provision could be written into its successor.

Productivity Factors (%) Applied to Each Payer by Year

Payer	Fiscal Year					
	83	84	85	86	87	88
Blue Cross	0	0	2	2	2	1
Charge Payers	0 *	0	2	2	2	1
Medicaid	2 **	2	2	1	0	0
Medicare	2	2	2	1	0	0

* Excludes a 1.4% reduction in allowable charges, thereby reducing the discount Blue Cross enjoys from charges. Charges were reduced from 10.4% to 9% above Blue Cross costs.

** Excludes a one time 5.5% reduction to adjust for differences in liability due to the shift from a per diem basis to charges.

3.4 Summary

Chapter 372 attempts to control increases in hospital costs by prospectively determining total hospital budgets. By keeping actual costs below the budgeted level, a hospital can profit from reduced costs achieved either through improved efficiencies or reduced utilization, or both. A hospital is, however, at risk for any overspending beyond its capped level. In fixing payments to predetermined levels, the law presents very different incentives than the ones inherent in a cost-based reimbursement system. In

addition to the opportunity to retain any realized savings, the law includes specific incentives to reduce and shift inpatient utilization to the outpatient department.

While the law applies to all payers and hence is an "all payer" system, it does allow for variations between the payers' liabilities, assuming identical service utilization. These variations are due to (a) the numerous restrictions imposed by the public programs on allowable costs, and (b) the differences in business and underwriting practices of insurance companies. By fixing the differential between the commercial insurers and Blue Cross (initially 9%, then 7.5%), the law limits the ability of hospitals to shift shortfalls onto the commercial insurers, thus offering protections from escalating charges. Chapter 372 therefore reduces but does not totally eliminate the cross-subsidization between payers.

Despite its main objective, to contain costs, the law is quite liberal in the adjustments made for inflation, changes in volume, and "exceptions". In addition, certain costs, most notably capital costs, are not regulated. The degree to which each of these adjustments can contain costs is, however, open to question. While many of these adjustments in some sense represents a "rational" solution, each can be seen as a struggle between the regulated

industry and efforts to control cost increases. Because most of these provisions were the outcomes of negotiations, many were significantly diluted or written to explicitly benefit the industry. For example, the volume corridors appear to be a rational solution to encourage declines in utilization. A more political analysis is that hospitals skillfully protected themselves (in fact, insured financial gain) from possible changes in volume, particularly for large decreases. Because both rational decision-making and political "capture" would appear as similar results, it is impossible to correctly attribute these provisions to their true sources, without interviewing members of the negotiating parties. At a minimum, the solutions should be seen as outcomes of both a rational decision-making process and political bargaining where the industry apparently won significant battles.

The next section discusses the problems inherent in the regulatory design that will undermine its ability to control cost increases.

3.5 Match and Mismatch Between Regulatory Intent and Program Design

Having outlined the general features of the law, it is now possible to analyze its regulatory intent and programmatic design. This final section compares the main components of hospital inflation with the provisions of this law to assess whether or not its features are appropriately targeted. I also highlight the most important assumptions made about hospital behavior in order to identify the law's potential weaknesses and strengths.

Chapter Two outlined the key sources of hospital inflation: increases in input prices, changes in the hospital product (i.e. the intensification of services), and increases in demand. It also discussed the validity of cost push and demand pull theories of hospital inflation. The first theory argues that increases in costs are due to forces primarily within the general economy, thus making input prices beyond the hospital's control--although two important sources, the costs of changes in technology and specialized labor are relatively specific to the hospital industry. The second theory contends that inflation is a result of increasing demand for hospital services.

Assuming both explanations have some validity, if hospital inflation is to be controlled, factors contributing to both types must be effectively addressed. Clearly, a state hospital payment system will have no ability to

influence the general economy and hence most of the input prices will be beyond the hospital's control. Therefore, to a large extent the increases in the costs of inputs should be treated as a passthrough. But the costs of technological change and the labor pool, in part industry based and driven, could be within the purview of a cost containment program. As discussed in Chapter Two, the labor costs, while a large portion of a hospital budget, have not been the real culprits in hospital cost increases. The real concern here should be the changes in technology. Unfortunately, Chapter 372 ignores these limited opportunities to control the rate of technological change and incorporates features aimed at controlling only demand pull sources of inflation, and even those are relatively weak.

The law has several provisions that reflect a cost-push model of inflation, thereby assuming that certain cost increases are not the responsibility of the hospital. The inflation adjustments are the most obvious examples of the passthroughs allowed. Non-labor costs are allowed to increase at the rates projected by the general economic indicators. Given the lack of control a hospital could exert over most of these, this is reasonable public policy. However, as mentioned above, certain supplies (like lab and

surgical supplies, drugs, and pharmaceuticals) might be influenced by a restrictive payment system. Yet, allowing complete passthrough of these costs provides no incentive to hospitals to begin to bargain with drug and hospital supply companies for reduced prices. That the indices are adjusted up at the close of the fiscal year further insures that the hospital is at no risk these costs beyond their control. These generous provisions also reflect the concessions won by the hospital industry in its negotiations with Blue Cross.

The adjustments made for labor costs also incorporates the cost-push theory of inflation. For all labor categories, the inflation proxy can not decrease even if actual inflation ends up being below projections. This provision seems fair, given the commitments employers must make to employees about wage increases. However, the provision that allows hospitals to get increases in their inflation adjustments for labor costs (if inflation was underprojected) but then does not require that these adjustments be passed on to the intended workers is an explicit giveaway to the hospital. Moreover, the use of hospital industry based indices (the AHE proxies) for over half of the labor categories (and costs) can hardly be considered restrictive in holding down costs. Furthermore,

its rationale, the non-transferability of these skills, is questionable and results in different inflation allowances (in theory, translated into cost of living adjustments) for different employee groups in the same hospital.

Capital costs provide an obvious example of costs certainly within the hospital's control but treated as if they were strictly due to forces in the general economy. Exemptions allow these costs to be passed through as if they were uncontrollable. Capital costs are seen as necessary expenditures, political or otherwise, and have been placed outside the MAC, not subject to regulation. Certain of these costs are unavoidable-- historical capital costs are fixed and approved DON costs are legislated to be included in Blue Cross payments. But the law could have attempted to control capital for the other payers and did not. Similarly, other costs, such as the operating costs that go along with D.O.N. capital costs and capital not required to go through the D.O.N. process are discretionary. The decision to put them outside the MAC reflects the political sensitivity of this area to hospital administrators: restricting capital expenditures threatens a hospital's ability to successfully compete for both doctors and patients (essentially, their market share.) Surely, with the DON program approval rate running about 90% at the time

of the law's design, no one could have expected this program to limit costs. These generous allowances may prove to be very costly in trying to hold down hospital inflation.

A related and also highly sensitive area is the costs of technological change. Like capital costs, these expenditures remained virtually uncontrolled by the law. Technological changes that require D.O.N.s (those considered a new service) are automatically passed through. Improvements not requiring a D.O.N. are treated as follows: inpatient ancillary costs are increased 2.4% per year (in part to adjust for increases in case mix and in part to adjust for increasing "intensity of services"); inflation proxies for laboratory and surgical supplies, drugs and pharmaceuticals incorporate whatever technological changes (and their attendant costs) have taken place during the year without restriction; and all equipment purchases are outside the MAC and remain unregulated. These provisions combined allow for technological change to be paid for at full costs, just as under the cost-based reimbursement system. In fact, they may encourage labor-saving technology to be purchased, since the labor costs are already included in the base year costs and the equipment will be paid as an additional capital expenditure.

The law implicitly recognizes the demand pull theories

of inflation with its central assumption that hospital costs are too high, need to be limited, and are, in fact, controllable. By separating costs from revenues, it assumes that hospitals do have discretion over their expenditures. The law targets "excessive" utilization and inefficiencies by rewarding facilities for reductions in service usage and overall costs. The application of corridors with marginal cost pricing incorporates the assumption that some portion of demand is variable (e.g. the marginal admission and some number of days at the end of a patient stay.) Given that other states exhibit patterns of lower resource intensity and lower hospitalization, these goals of reduced utilization, and hence lower costs, are reasonable. In addition, the law encourages more cost effective outpatient alternatives to inpatient care.

Critics contend that the law was too liberal in its acceptance of the already inflated base year costs. Similarly, the law, rather than aggressively dealing with the excess supply of hospital beds in the state, was seen as offering a three year protection for the current configuration of resources. Though the law does accept base year costs as given, it acknowledges some inefficiency in the hospital system through the application of productivity factors that shrink payments made to hospitals. This

feature of the law is intended to reduce demand or encourage improvements in management and operations. That this feature may adversely affect access, scope, or quality of services is not addressed in any provisions in the law.

It is interesting to note that Chapter 372 (originally defined in HA-29) is identical to the old charge control program that was in place since 1976 and was ineffective in controlling increases in charges.[13] Policy-makers must have been convinced that the root of the ineffective charge control program was the ability of hospitals to shift rather than reduce costs. With the cost shifting problem solved, the model was assumed to be a good one, or at least a readily available one to test.

In summary, a comparison of the regulatory program with the identified sources of increases in costs yields a mixed review of the law's potential. For changes in the prices of inputs, the law basically accepts these increases in costs, as it should. Most of these costs are not within the control of the hospital and policies should not hold the hospitals accountable for inflation in these areas. On the other hand, certain costs clearly within the control of the hospital are treated as if they were not. Capital costs

13. The C.409 system took base year costs and adjusted them for changes in volume, inflation, and costs beyond control.

(including both equipment and buildings) are not regulated by the law. Similarly, a wide range of exceptions provide an escape valve for adjusting base year costs. It would be interesting to know if other models were even considered in the design of the all payer system. It is quite possible that the model did not work previously in part because it was simply too generous. That Chapter 372 simply replicates these weaknesses may have serious consequences for its ability to control cost increases.

The law would appear to be only slightly more successful at controlling increases in intensification and demand. The law adequately addresses increases in inpatient volume by paying marginal costs for any increases in volume. The incentives to reduce service utilization attempt to reduce demand but may suffer from a structural weakness in the law: the law regulates hospitals, but physicians and patients are the real source of demand for services. Thus, the success of these provisions lies in the ability of the administrator to translate these broad initiatives into changes in the practice patterns of physicians.

The law also provides inadequate controls over the increasing intensification of service usage. Not only are capital costs passed through, but the automatic 2.4%

increase in inpatient ancillary payments is likely to represent a giveaway to those hospitals where real case mix intensity (that is, where the increase in case mix is not due to changes in coding practices) is not increasing at 4% per year. These provisions fail to distinguish between increases in service intensity due to increases in case mix or improvements in quality of care and more questionable sources of increases of "intensity". While definitions of acceptable improvements in quality are admittedly difficult, the lack of an attempt to separate out these phenomena may result in overly generous payments.

The law integrates for the first time the concept of risk and reward into the payment system. The business community wanted to move the system towards rewarding good performers and having the hospitals accept the risks associated with operations. To them, the hospital industry should be similar to other businesses where prices are not guaranteed. To the extent that hospitals should be managed as any other efficient business, this represents an improvement in the hospital payment system. This notion of efficiency, however, ignores the very real differences that exist between hospital care and other commodities, most notably (a) administrators do not control demand, physicians do, (b) demand will be quite price insensitive, and (c)

general market forces traditionally have been weak. These unusual conditions make controlling demand for hospital services difficult.

Associated with the concept of risk is the notion of prospectivity. While a much touted advantage of the payment system, the degree of prospectivity can be seriously questioned. The system takes (liberal) 1981 actual costs, and retrospectively adjusts for inflation, volume, exceptions, bad debt, free care, malpractice and capital costs. The scope of the acceptable exceptions allows for just about any increase that might be beyond, and even within, the hospital's control. Based on this rather liberal classification of exceptions, the retrospectivity of the adjustments, and the reimbursement at cost for several categories of expenditures, I conclude that the payment system may benefit most of the hospitals. The rewards from containing costs can be pocketed as profits and most of the increases in costs (the risks) are either passed through or paid at fair marginal costs. The hospitals at serious risk fall into two categories:

(1) those hospitals with efficient operations prior to the law. They have no inefficiencies to eliminate and profit from, and the productivity factors will reduce their payments annually. Moreover, if these hospitals have a

physician staff that already practices cost effective care, this avenue for cost containment will not be available to them. Essentially, these hospitals are penalized for their past "good" behavior.

(2) hospitals with high cost to charge ratios (reflecting a poor payer mix--where a small charge paying population is carrying the costs of alot of governmental shortfalls and uncompensated care). In an increasingly competitive environment, hospitals do not want to increase charge levels, even though this is the legislated mechanism to recover the costs of uncompensated care. In addition, the government shortfalls can not be recouped in this manner. With limited ability to shift costs, these hospitals have few options to remain financially solvent. The options include generating non-operating revenues, improving the payer mix at the hospital (securing contracts from better paying HMOs or setting up ambulatory sites in strategic locations that will funnel insured patients into the hospital), cutting services and/or quality of care.

In its uniform treatment of hospitals, the law actually ends up being fairly inequitable to different types of institutions. Categories that would be candidates for different payment policies include hospitals treating a high number of un- and under-insured patients, hospitals with

varying degrees of efficiency, and hospitals in geographically remote areas where an institution is the sole provider of services. The arguments for each case are outlined below:

- (a) In the case of hospitals with a high proportion of uncompensated care, these institutions should not be penalized either for their location or for serving a poor population. These hospitals play an important role for the entire hospital industry by taking in these (undesirable) patients.
- (b) Efficient hospitals, forced to comply with the productivity factors, will have to cut back on services since there is no inefficiency to eliminate. Similarly, though designed with good intentions, the volume corridors may unfairly treat teaching hospitals and community hospitals in the same manner. Although teaching hospitals have more tests with which to decrease their volumes of ancillary services, their responsibilities as teaching institutions may limit their ability to respond to the incentives.
- (c) Geographically remote or small hospitals which may be the sole provider of services have less flexibility in the services they provide and meeting any variations in demand.

Table 3.8 outlines which hospitals are likely to benefit from and which are likely to lose under the new payment system.

Table 3.8. Winners and Losers Under Chapter 372

Winners	Losers
Inefficient hospitals	Efficient hospitals
Hospitals that can cut costs by up to 7-8% below the MAC	Hospitals that are unable to cut costs
Hospitals that do not have alot of cross-subsidization between payers	Hospitals which have heavy reliance on charge payers to cross-subsidize other payers
Hospitals previously penalized by other regulatory policy (e.g. Medicaid occupancy penalties)	Hospitals that maximized payments by using different accounting and reporting systems for each payer

Finally, the law assumes by providing incentives for hospitals to reduce costs that administrators in turn can control the demands of physicians (and consumers.) The law typifies hospital regulatory strategies aimed at hospital costs: it requires administrators' compliance yet does not directly involve the clinicians who control the allocation

decisions and generate many of the costs.[1] Because the law has its roots in a Blue Cross contract that regulates hospital payments, it can not control the behavior of physicians (these are regulated by Blue Shield.) That physicians were excluded from playing a direct role in the design or structure of the law reflects both this historical separation of the two main providers of services and the ability of physicians to avoid direct regulation of practices to date.

Unfortunately, without physician involvement, the law will have limited ability to reduce hospital costs. To be sure, certain operating efficiencies can be achieved via improved management practices, increased productivity, and shifts in product lines. However, to substantially contain costs, medical practice patterns must be modified to reduce

1. Jeffery Harris, "Regulation and the Internal Control in Hospitals," Bulletin of New York Academy of Medicine, Vol.55, No.1.

2. This is evidenced by the extent to which physicians influence hospital costs. One study estimated that physician decisions directly control about 40% of the explained inappropriate lengths of stay. See J.D. Restuccia and D.C. Holloway, "Barriers to Appropriate Utilization of An Acute Facility," Medical Care (7), July 1976. Another study found that laboratory, x-ray, and pharmaceutical costs (all physician determined) constitute 50% of a patient bill. See S.A. Schoeder and A.R. Martin, "Will Changing How Physicians Order Tests Reduce Medical Costs?", Annals of Internal Medicine (4), Part I, April 1981.

resource consumption.[2] The following list highlights the difficulty administrators may have in controlling key sources of resource utilization.

Ancillary Use: Primarily controlled by physicians, although administrators can set up many guidelines that will make practice patterns more difficult to maintain e.g. eliminate the facility to order routine lab stats or blood serials.

Outpatient Use: Primarily controlled by physicians and insurers. Physicians can be encouraged to shift practices to the outpatient department (by establishing programs or protocols) but the type of medical care provided may be substantially different (e.g. day surgery). Insurers must cover the services in the OPD setting.

Routine Inpatient Costs: Again, a combination of physician and administrator controls. While administrators can eliminate some of the marginal admissions (by having stricter admitting desk procedures), physicians dominate the admission decision. Similarly, administrators can improve discharge planning efforts (by hiring more discharge planners) but it is the physician who ultimately controls this decision.

Capital Costs: Administrators, driven by goals of maintaining a large medical staff, teaching with state of

the art technology, and increasing market share, may feel they have no real option but to increase capital expenditures.

Labor Costs: Administrators control this expense but are circumscribed by labor contracts, concerns about quality of care, community support, and the requirements of increasingly sophisticated technology.

This trend in declining utilization allows hospitals to reap the benefits of changing practice patterns, independent of the incentives of the law. These trends were just beginning in the period 1980-81 when the original Blue Cross contract was written. Designers of the Blue Cross system, if foresighted about the permanence of these downward trends, were willing to pay the price for changes in practice patterns.[3] Such payments to extract changes in practice patterns make sense if they are seen as a long run strategy. That is, in the immediate years the payments will actually be higher than utilization would warrant. But eventually when the system is rebased on a more recent actual year of costs (which will be smaller by then), the payments will be reduced.

3. Actually, Blue Cross was willing to pay twice--once in the decline in inpatient days and again on the outpatient side for increases in outpatient utilization.

In summary, Table 3.9 compares the desired features of a payment system described in Chapter 2 with the provisions of the law. The law meets most of the design criteria outlined. Major weaknesses of the law include overly generous savings accruing solely to hospitals for the first two years, the lack of control over capital costs, the absence of physician involvement, and its lack of quality assurances. The next chapter assesses the effects of the law on costs and utilization and will provide insight into the degree to which these limitations restricted its ability to control costs.

Table 3.9 Comparison of Desirable Features of a Payment System and Provisions of Chapter 372

Feature	Provision in Chapter 372
Mandatory	Participation of all hospitals is mandatory
Regulate total costs or revenues	Total revenues are capped
Cover all payers	Covered all payers 1982-84.
Uniform cost reports	All payers liabilities are calculated using the Blue Cross MAC report to minimize charge rationalization
Allow service cross subsidization	Law does not set service specific rates, allowing service cross-subsidization.
Equitable treatment of hospitals	Initial uniformity in the law resulted in inequities between hospitals.
Incentives should encourage efficiency but not at the expense of quality	Law encourages efficiency but its effects on quality are uncertain. Access was improved.
Control capital costs beyond passing thru CON approved	CON approved expenditures go thru BC to determine actual allowable costs. Exceptions review process could be stringent or lenient.
Integrate MD into cost control system	MD excluded from payment system leaving MD and administrator with conflicting objectives.
Combine formula with case by case review	Formula determines several adjustments. Actual costs and case by case review are used for many cost components.

Feature	Provision in C. 372
Consistent incentives	All explicit incentives consistent. Possible contradictory long-term incentives if hospitals assume a rebasing would occur on subsequent year's actual (smaller) costs
Stable policies	All major policies and incentives have remained unchanged. Refinements correct inequities and overly generous features

Chapter 4

The Results of the Law

This chapter examines the initial results of the law. It addresses three main questions: a) Did Chapter 372 reduce the rate of increase in costs? b) If so, how? and c) Did the industry have a uniform response, or were there patterns of responses for different types of hospitals?

These questions are important to policy makers who will want to know if the law as designed was effective. For example, if the specific incentives of the law did not work yet costs were contained, then we will have learned that the fine tuning included in this system is basically irrelevant to cost containment. Rather, the key to containing costs was putting the hospitals on a budgeted, prospective payment system. Conversely, if the incentives appear to have been successful at shifting patterns of utilization, then it suggests

that the details of the system do matter. In addition, we will want to know if there were unintended effects of the law, both positive and negative, that can guide future regulatory policy. And finally, it is important to know if certain types of hospitals (say, large versus small, or teaching versus community hospitals) had different responses to the law. Such patterns of responses will hint of the law's equity in treating all hospitals identically.

The chapter is organized into six parts. The first section discusses the data sources and sample size used in the data analyses. The second and third sections examine the results of the law, first answering the question of whether the law reduced the rate of increase in hospital costs, and then assessing the efficacy of the explicit and indirect incentives of the law. Fourth, I discuss the results of analyses performed by Blue Cross of Massachusetts on changes in total basis of payment (levels of payment) since the law's enactment. As opposed to actual expenditures, these analyses examine the breakdown of the payments made to the hospitals. Remember that these payments are based

on actual 1981 costs adjusted forward for changes in volume, inflation, exceptions, capital, uncompensated care and other categories paid for at cost. These studies are reviewed because they indicate the degree to which the law is retrospective and the assumptions about hospitals' ability to impose controls on their own spending behavior. That is, if enough adjustments are made at the close of the fiscal year to reflect actual costs, then the system loses its prospectivity. Last, I discuss the results of analyses which compare the responses of different types of hospitals. Breaking the industry down into groups, it is clear that different types of hospitals use different strategies to reduce costs. Combined, these analyses will identify which aspects of the law appear to have worked and which ones did not, and suggest the validity of the assumptions made about hospital behavior.

4.1 SAMPLE SIZE AND DATA SOURCES

I analyzed 91 non-municipal acute care hospitals holding HA-29 contracts with Blue Cross for the

period 1982-1985.¹ All municipal hospitals were excluded because they came under the purview of Chapter 372 a year after the rest of the industry. Their exclusion simplified analyses by eliminating the need to lag their responses by a year. Also, their responses to the law would be observable for only two years, versus the three for all other hospitals. If some responses took longer than a year to be evident, then the impact of the law on these hospitals may barely be seen.

The sample of 91 hospitals accounts for 88% of the industry's costs and represents 97% of the non-municipal hospitals' costs. All hospitals in the sample are private, non-profit hospitals except for one, Central Hospital (a small proprietary hospital in Somerville.) The sample included 28 teaching hospitals (according to criteria developed by the Massachusetts Rate Setting Commission, which

1. Two other non-municipal hospitals (Hahnemann and Southwood) came under the system late and were similarly excluded. Parker Hill Hospital, the hospital then owned and operated by the Harvard Community Health Plan, consistently misreported cost information and is excluded from all analyses except where only total costs are used. Martha's Vineyard Hospital is not paid on the basis of HA-29 and was therefore excluded.

includes major and minor teaching hospitals.) Appendix B summarizes the name, size, and teaching status of the hospitals included in this study.

Additional hospitals had to be excluded from several specific analyses where data were incomplete or otherwise inaccurate. Most notably, sample sizes are limited in the analyses of inpatient, outpatient, routine, and ancillary cost breakdowns. Many hospitals misreport these cost disaggregations, or fail to report them, leading to their exclusion from certain studies. In addition, if a hospital was missing data for one year, it was not included in the analysis to keep the sample sizes between years identical. Finally, many hospitals do not incur certain costs (for example, teaching costs) and therefore, the number of reported values in these studies will accordingly be of a smaller sample size. Wherever possible, all hospitals are included in the analysis.

Hospital cost, revenue, and utilization data were obtained from hospital cost reports filed with the Rate Setting Commission. The time period extends from fiscal years 1979 through 1985, providing four years pre-Chapter 372 (1979-1982) and three years

post (1983-1985). Payment data were taken from a report prepared by Blue Cross entitled, "Blue Cross Hospital Agreement 29: A Three Year Review." ² All national data were obtained from annual American Hospital Association Hospital Statistics reports. Only comparable variables were used. Appendix C includes a methodological note on the data sources and the process by which data items were verified.

All costs data have been deflated using a Boston-All Urban Consumers CPI. Dollars have been standardized to FY 1984 dollars. National data have been deflated to 1984 dollars using a national, all urban consumers CPI.

4.2 RESULTS: DID THE LAW REDUCE COSTS

The objective of Chapter 372 is to reduce the rate of increase in hospital costs. Although seemingly straightforward, several complexities arise when

2. Policy and Evaluation Department, Health Care Reimbursement, Blue Cross of Massachusetts, "Blue Cross Hospital Agreement 29: A Three Year Review", (Boston MA: Blue Cross of MA, 1985.)

measures of effectiveness are examined. In part, these complexities reflect standard problems of control-- the provision and cost of hospital care is changing throughout the nation so the effects of the law are hard to isolate. Comparison to national and regional trends separate these factors from the effects of the law. The controls allow us to attribute any observed changes to their appropriate source without over- or under-estimating the effects of the law.

Even putting aside the issue of external controls, analysis is difficult because of the numerous, in some cases competing influences on hospital costs. Examining changes in total costs may underestimate the effects of the law because we may be actually measuring (1) increases in population, or (b) increases in case mix intensity due to the aging population and new services.³ First, the population in Massachusetts has changed and will affect utilization. If total costs had remained relatively

3. The population increased slightly between 1979-85 (.3%) and grew a little older (the 1980 percent over 65 was 12.3% and by 1984 this had increased to 13.4%.)

constant but the population had grown older, then the per capita cost would have decreased, indicating an effective program even though total costs would not have changed. Calculating costs per capita controls for changes in the population while measuring the law's effects.

Second, the services provided have changed, reflecting in large part the intensification and sophistication of medical services. These trends increase the average cost of hospital care per person. A hospital could have constant efficiencies but due to the increase in intensity of case mix and sophistication of services may have increasing costs. Measuring costs per case mix adjusted discharge controls for changes in intensity of case mix but may miss some of the effects of the law. This is because the law actually affects the case mix intensity of a hospital by encouraging shorter lengths of stay and increased use of the outpatient department. A hospital responding to some of the law's incentives would have an increase in case mix intensity and higher costs per day and costs per discharge. Conversely, other incentives, like those to improve overall efficiency and decrease ancillary

use could work to reduce costs per discharge. In short, costs per discharge or costs per day can not tell us very much about the law's effect because the incentives cut both ways. These often used measures of hospital costs are reported here but are harder to interpret.

Total Costs

Figure 4.1 depicts the increase in total costs from 1979 to 1985 in constant dollars. Table 4.2 shows the absolute dollars and rates of change in totals costs for the same period. The steady increase in costs was curbed somewhat once Chapter 372 was implemented. The rates of increase between 1979-80 and 1980-81 were 3.4% and 13.2% respectively, whereas after the law the rates for 1983-84 and 1984-85 were a substantially reduced 1.6% and 1.1%, respectively. Statistical tests were done to see if the rates of increase in costs were significantly different post-Chapter 372 from the

4. The appropriate statistical test for this analysis is a T Test on the difference between the average rate of increase pre-Chapter 372 and the average rate of increase post-Chapter 372. The analyses was performed on individual hospitals' rates of increase.

Figure 4.1 Total Hospital Costs in Massachusetts
in Constant Dollars, 1979-85

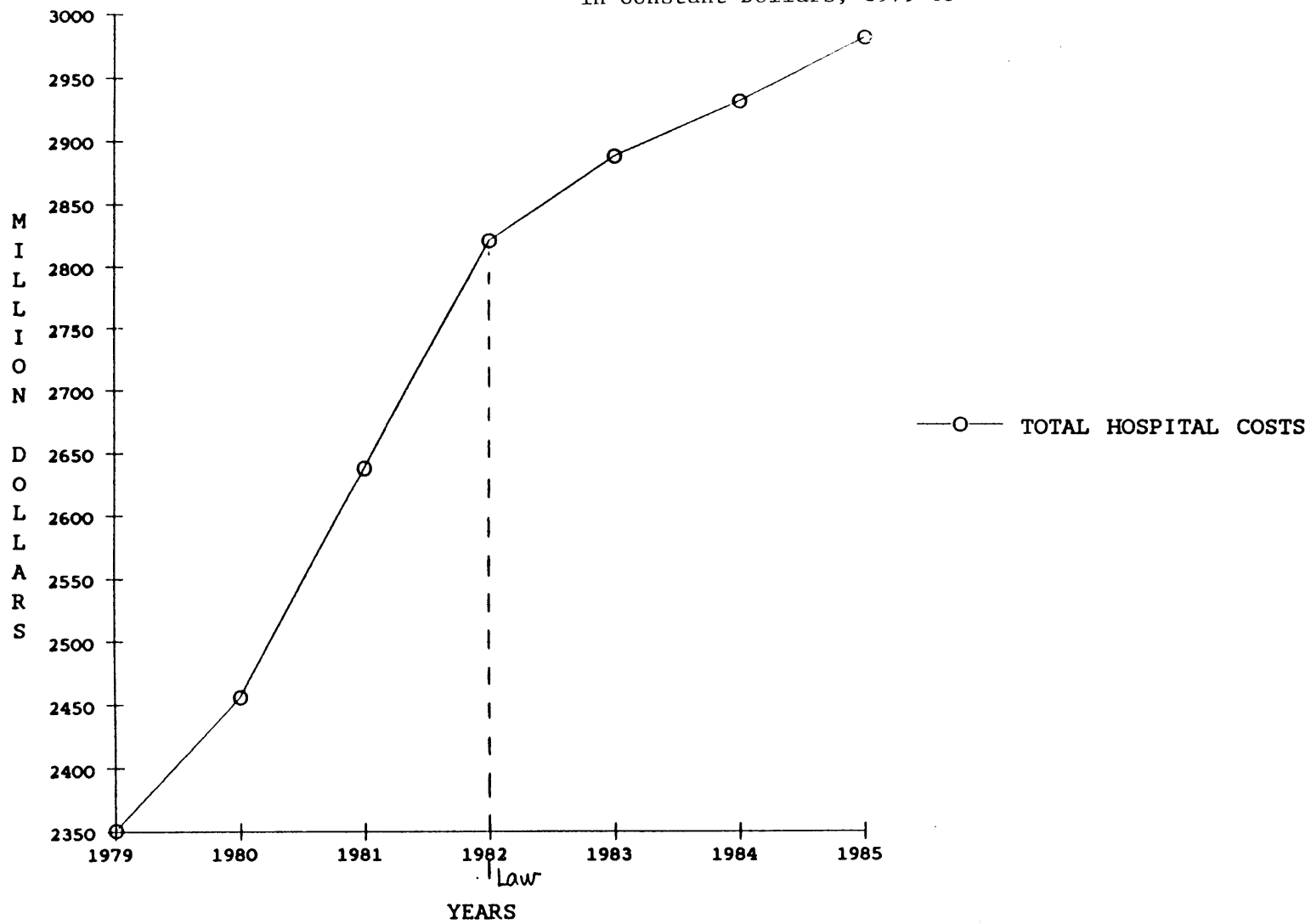


Table 4.2 Absolute Dollars and Percent Increase in Total Costs, Costs Per Day, Costs Per Discharge, and Costs Per Capita, In Constant Dollars, 1979-85.

	1979	1980	1981	1982	1983	1984	1985
<u>Total Costs</u> (in millions)	\$2,590	\$2,697	\$2,893	\$3,095	\$3,164	\$3,211	\$3,271
Mean Percent Change		3.4%	13.2%*	7.3%	2.5%	1.6%	1.1%
<u>Costs Per Day</u>	\$374.21	\$380.80	\$409.92	\$440.41	\$459.42	\$484.86	\$534.25
Mean Percent Change		1.8%	7.2%	8.0%	4.8%	5.8%	10.2%
<u>Costs Per Discharge</u>	\$3,235	\$3,325	\$3,659	\$3,881	\$3,926	\$4,008	\$4,215
Mean Percent Change		3.2%	11.0%	6.8%	2.0%	2.8%	5.8%
<u>Costs Per Case Mix</u> <u>Adjusted Discharge</u>		\$3,223	\$3,583	\$3,727	\$3,712	\$3,726	
Mean Percent Change			10.5%	4.7%	0.3%	1.5%	
<u>Costs Per Capita</u>	\$522	\$548	\$586	\$628	\$640	\$649	\$653
Mean Percent Change		4.2%	12.9%	7.4%	2.2%	1.6%	-0.2%

n=86

*If Lahey Clinic and the Brigham and Women's Hospital were excluded this percent increase would be 5.0%.

years pre-Chapter 372.⁴ The mean absolute difference between pre and post C.372 rates of increase in costs was 6.2%, with a high level of statistical significance.⁵ These results indicate that something happened between the two periods to change the real rates of growth after 1982.

Averaging the rates of increase for pre-C.372 and post-C.372 years has the effect of discarding a lot of information about each of the rates of change between years. Specifically, hints about the law's efficacy would be revealed if the rates of increase changed immediately after the law's implementation. Policy-makers may also be interested to know if this law, like other rate setting programs, took some lag period to become effective. To answer this question, T tests were performed on annual rates of change. Any significantly different rate of change would offer further evidence that "something" had changed in the rates of increase between the years prior to and post implementation. Table 1 of Appendix D shows the results of these tests.

5. Appendix D, Table 1 includes the t statistics.

The results showed that the rate of increase in costs for 1982-83 was significantly different from the period prior to the law's implementation, 1981-82, indicating a slowing down of real increases in hospital costs. Although decreases were also found in the differences in the rates for subsequent periods, they were not significantly different. These results suggest that the law had an immediate significant negative effect on the rates of increase. If the decreases in costs were attributable to the law, the immediacy of the law's effect differs from the results of other rate setting programs that show that a lag time is required before the programs are effective.

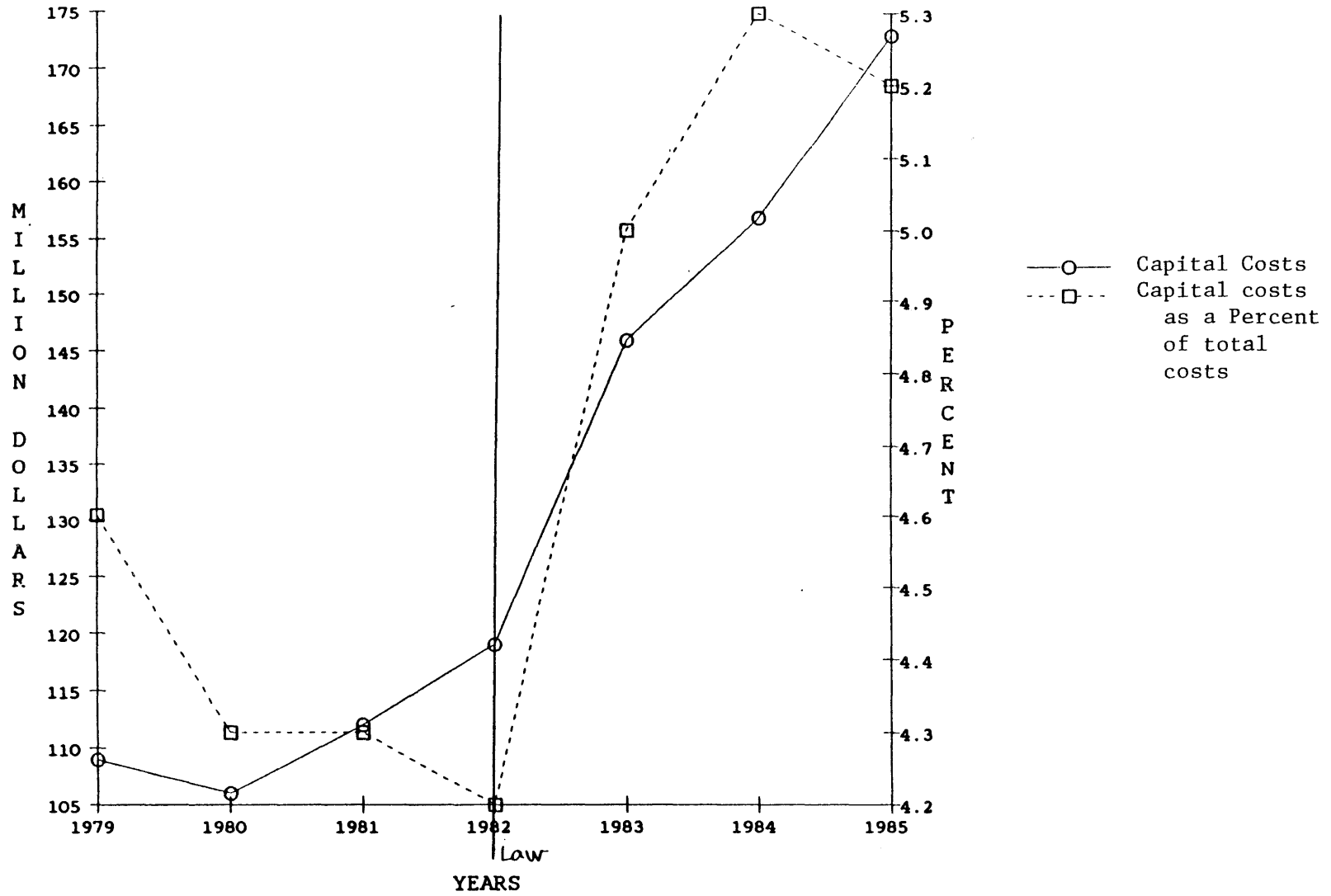
One important refinement to these results is to examine the rates of increase in costs without capital. This is because capital costs (including interest and depreciation, comprise about 8% of total hospital costs) are excluded from the law so that effects of the law may be masked by large

6. For example, the major expansion projects of the Lahey Clinic and the Brigham and Women's Hospital in 1980 significantly increased capital expenditures for the entire system. When these hospitals are included costs increased 13% between 1980-81, versus 5% without them.

changes in capital expenditures.⁶ Furthermore, approvals by the Determination of Need Office (required before major expenditures can occur) were seriously curtailed in 1982 when the King Administration almost halved the Office's budget. I would expect capital expenditures to be low one to two years after this period, as capital projects coming on line were restricted. Once the budget was restored (1983) and more approvals could be made, capital costs would again increase at a higher, unregulated rate. Figure 4.3 depicts capital costs in constant dollars and capital costs as a percent to total costs between 1979-85. Examining costs excluding capital allows us to look at the law's effect on only those costs it was designed to curtail.

The results of these studies, shown in Table 2 of Appendix D, indicate that considering only non-capital costs increases the difference between the rate of increase of total costs in pre- and post-periods (3.7% compared with 4.5%.) Again, examining the annual rates of change, increases in costs subsided in the year immediately after the law's implementation. These results suggest that

Figure 4.3 Total MA Capital Costs in Constant Dollars and as a Percent of Total Hospital Costs 1979-85



capital costs rose rapidly in the period 1983-1985, indicating that reductions in overall rates of increase were achieved despite these large expenditures.

Costs Per Capita

Because the rate of increase in costs may be attributable to changes in population, per capita measures are examined to control for this effect. Table 4.2 includes data on absolute and rates of change in per capita expenditures between 1979 and 1985. Analysis on per capita costs indicate that the rate of increases in costs per capita declined a significant 6.9% between the pre- and the post-periods. (See Table 3 of Appendix D for T test results.) This result further supports the indication that the law had a positive effect on controlling hospital expenditures. That is, the law appears to have reduced the rate of increase in hospital costs controlling for the changes in the population.

Costs Per Patient Day and Costs Per Discharge

Costs per patient day and costs per discharge (the cost of a hospital stay) control for changes in

volume that might explain a change in the rates of increase in total hospital costs. Given various pressures to decrease the average length of stay (including concurrent review and improved discharge planning), the elimination of the marginal (and less resource intensive) days at the end of a stay would be expected to increase the costs per day. In addition, cost containment efforts targeted at the marginal admission would also increase costs per day. Both of these strategies would result in sicker (and more expensive) patients remaining in the hospital. Moreover, the fixed costs of the institution would still have to be spread over fewer patients, thereby increasing the costs per day. As mentioned previously, costs per discharge are hard to assess. On the one hand, they may increase due to similar trends affecting costs per day. On the other hand, improved efficiencies and decreasing length of stay may contribute towards a reduction in costs per discharge.

Analyses of the increases in costs per day (shown in Table 4.2) revealed that there was not a statistically significant difference in the rates of increase between the two periods. (Table 4 of

Appendix D includes the t statistics.) Thus, although the rate of increase in total costs declined, days declined relatively faster, and the costs per day continued to increase.

Analyses showed (see Appendix D, Table 5) that costs per discharge decreased at statistically insignificant rates between the pre- and post-periods of C.372. The costs per discharge continued to increase but at slower rates than in the pre-C.372 period. Case mix adjusting the costs per discharge revealed minimal increases in costs, indicating that much of the increase in costs per hospital stay was due to the increasing intensity of case mix at the hospital.

Summary of Results Comparing Pre- and Post- C.372

Barring no major shifts in demographics ⁷ or concurrent changes in hospital payment policy, these analyses suggest that the law appeared to have slowed the rate of increase in both total industry

7. The population increased slightly between 1979-1985 (.3%) and grew a little older (the 1980 percent over 65 was 12.4%; by 1984, this had increased to 13.4%.

expenditures and per capita costs. Not only were the rates of increase in the post period lower than the increases in the pre period, but the first year after the law's implementation saw lower rates of increase than in any prior or subsequent period. These results suggest, but can not prove, that the law was effective at reducing the rates of increase in real hospital costs. Measures accounting for changes in volume (costs per day and costs per discharge) revealed that hospitals responded to pressures to reduce utilization, resulting in changes in volume that outpaced the slowing down of the rates of increase in costs. Thus, costs per day and costs per admission continued to increase at rates not statistically different from those in the pre-C.372 period.

4.2.1 Comparison with National and Regional Experience

While these results are encouraging, they beg for broader comparison with national and regional trends. The straight pre-post comparison of MA experience is likely to over-estimate the effects of the law because they indirectly attribute all

changes in the environment to the law. This is because they fail to control for broader forces that, as previously discussed, we know have been working to lower the rate of increase in hospital costs. These broader forces include: the increased competition hospitals face from alternative providers, increased competition between hospitals for a larger share of a shrinking market, increased pressure from third party payers and large employer groups to keep hospital costs down, and the emergence of preferred provider organizations (PPOs) and health maintenance organizations (HMOs) with their lower rates of hospitalization than traditionally insured groups.⁸

Comparing MA to regional norms is likely to provide a better control than a comparison to national trends. This is because regional trends best reflect the factors influencing Massachusetts hospital payment experience. For example, a regional comparison has appeal over national

8. Willard G. Manning, et al, "A Controlled Trial of the Effects of a Prepaid Group Practice on Use of Services", New England Journal of Medicine (1984) 310(23): 1505-1510.

comparisons because of the importance regional physician practice patterns play in dictating hospitalization rates and the resource utilization.⁹ The rest of the country has had lower utilization and costs than the northeast states (including CT, RI, VT, NH, NJ, NY, MD, and ME), which more closely parallel those in MA. In addition, Massachusetts has more in common with the highly regulatory approaches taken by several of the states included in the Northeast than with the lack of regulation in most of the rest of the country. Without C.372, MA would undoubtedly have had some form of regulated payment system, as existed prior to the law's implementation. For these reasons, comparisons with the northeast will be performed.

No evaluation of a state rate setting program would be complete, however, without comparisons made to national experience. This comparison will help to identify the extent to which the success of Chapter 372 was due to the effectiveness of the law

9. John Wennberg and Alan Gittelsohn, "Variations in Medical Care Among Small Areas", Scientific American 1982 (246): 120-34 and "Small Area Variations in Health Care Delivery" Science 182: 1102-08.

or due to nationally occurring declines in utilization, which in turn reduced costs. Failure of MA experience to differentiate itself from national trends will indicate that at least some of the law's apparent success is in fact due to these trends and not due to the law's efficacy.

A lack of distinction will not, however, mean that the law had no effect on controlling costs. Just as a pre-post MA comparison over-estimated the effects of the law, a comparison with national experience will tend to underestimate its effects. This is because the "control", in this case the national experience, includes many state regulatory programs (many partial programs and a handful of comprehensive regulated payment systems) and the federally regulated payments for Medicare using its prospective payment system as of October 1983. Thus, in comparing MA with national data, we are comparing the MA payment system to a patchwork of various regulated solutions. In addition, MA has always had high rates of increase, well beyond the national experience. So, putting aside the question of whether the high utilization and costs were reasonable, to bring MA suddenly within reach of

national rates of increase is ambitious.

Comparisons with regional trends reveal that the law continues to look fairly effective. Figures 4.4 - 4.7 show MA and northeast trends in total costs, costs per day, costs per admission, and costs per capita. Increases in total costs were lower for MA than for the regional peer group by a statistically significant five percent. (See Tables 6 and 7, Appendix D for the statistical results.) Volume measures were very similar for MA and the Northeast, with no significant differences in the rates of change for discharges or average length of stay. Increases in patient days were significantly lower in MA than the northeast. Because total costs declined more rapidly in MA but the declines in patient days were similar to the peer group, costs per day in MA were kept significantly lower. These results indicate that MA was able to contain total costs relative to a peer group of states with similar utilization trends and similar regulatory environments.

Figures 4.4 - 4.7 show Massachusetts compared with national trends for total costs, costs per discharge, costs per day, and cost per capita.

Figure 4.4 Comparison of MA, Northeast, and US Rates of Increase in Total Hospital Costs 1979-80 to 1984-85.

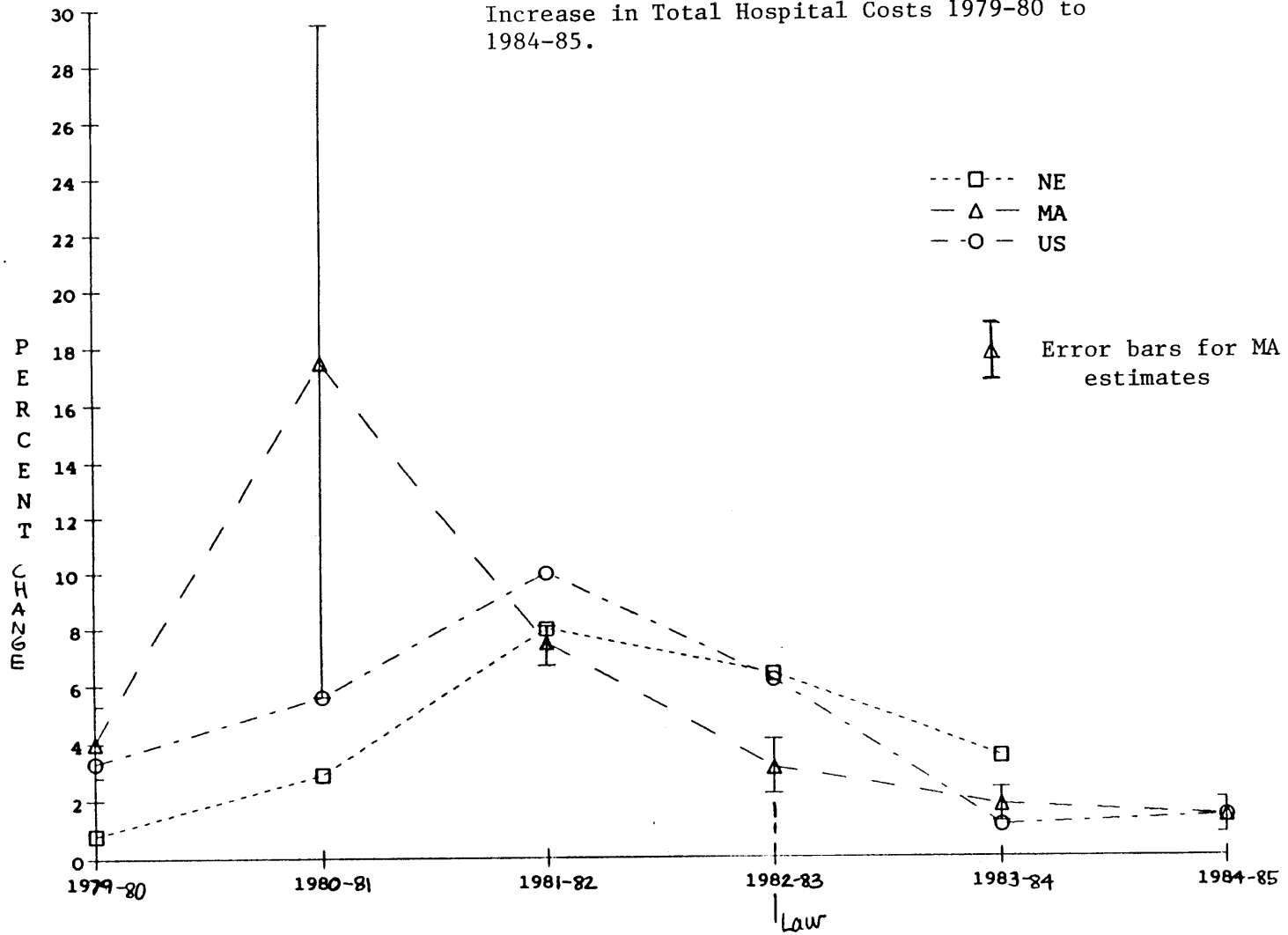


Figure 4.5 Comparison of MA, Northeast, and US Cost Per Discharge

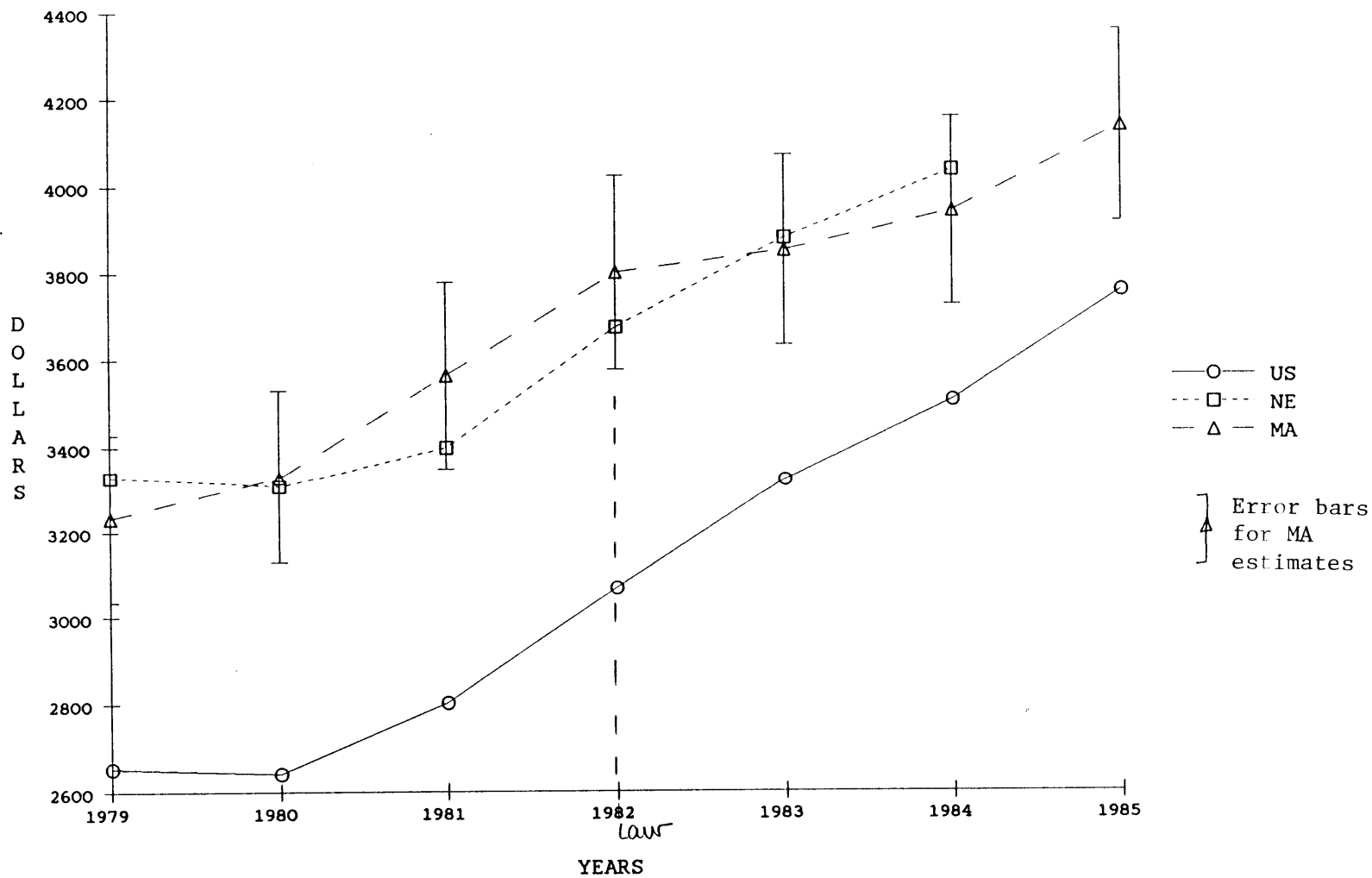


Figure 4.6 Comparison of MA, Northeast, and US Costs Per Day in Constant Dollars 1979-85

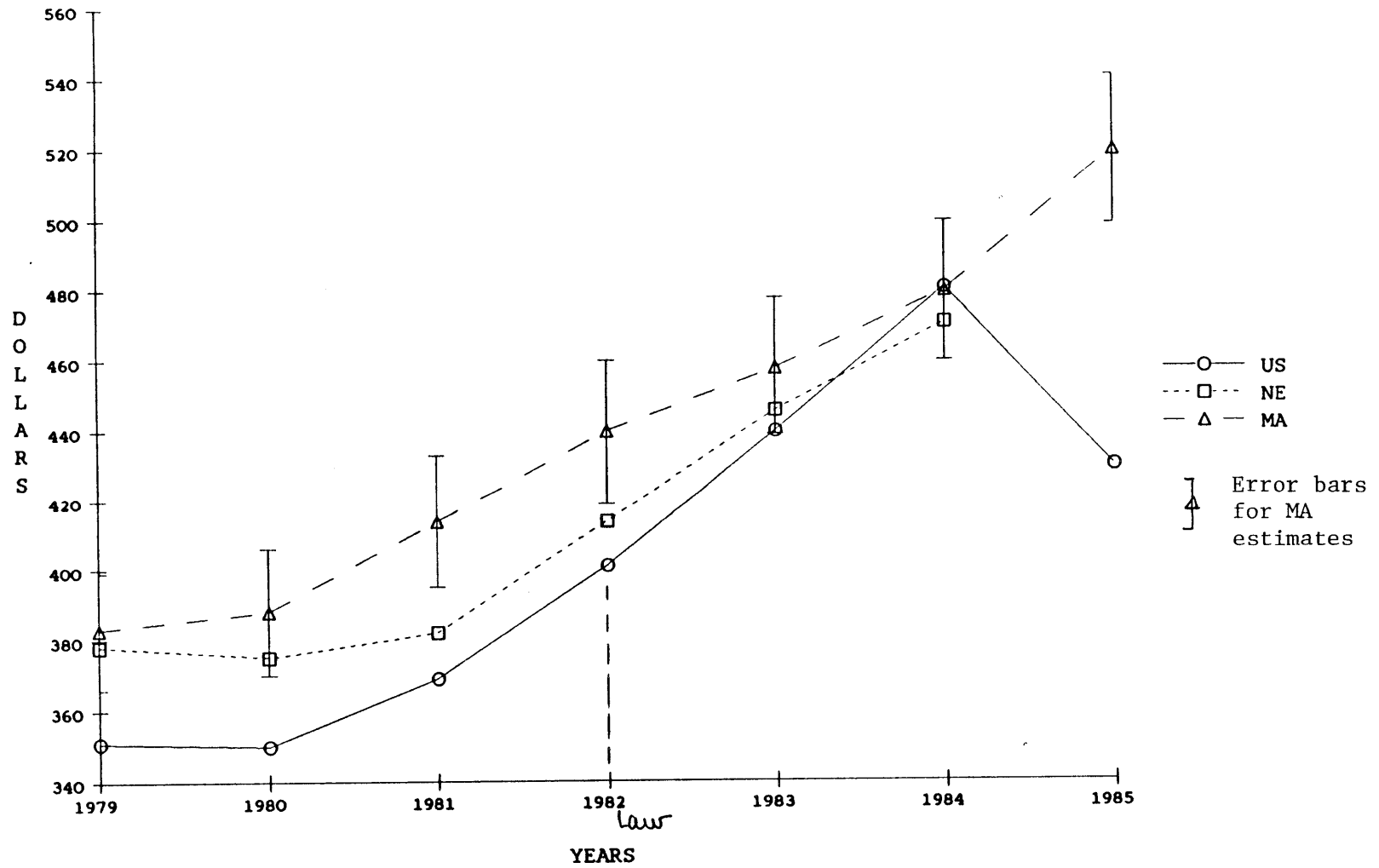
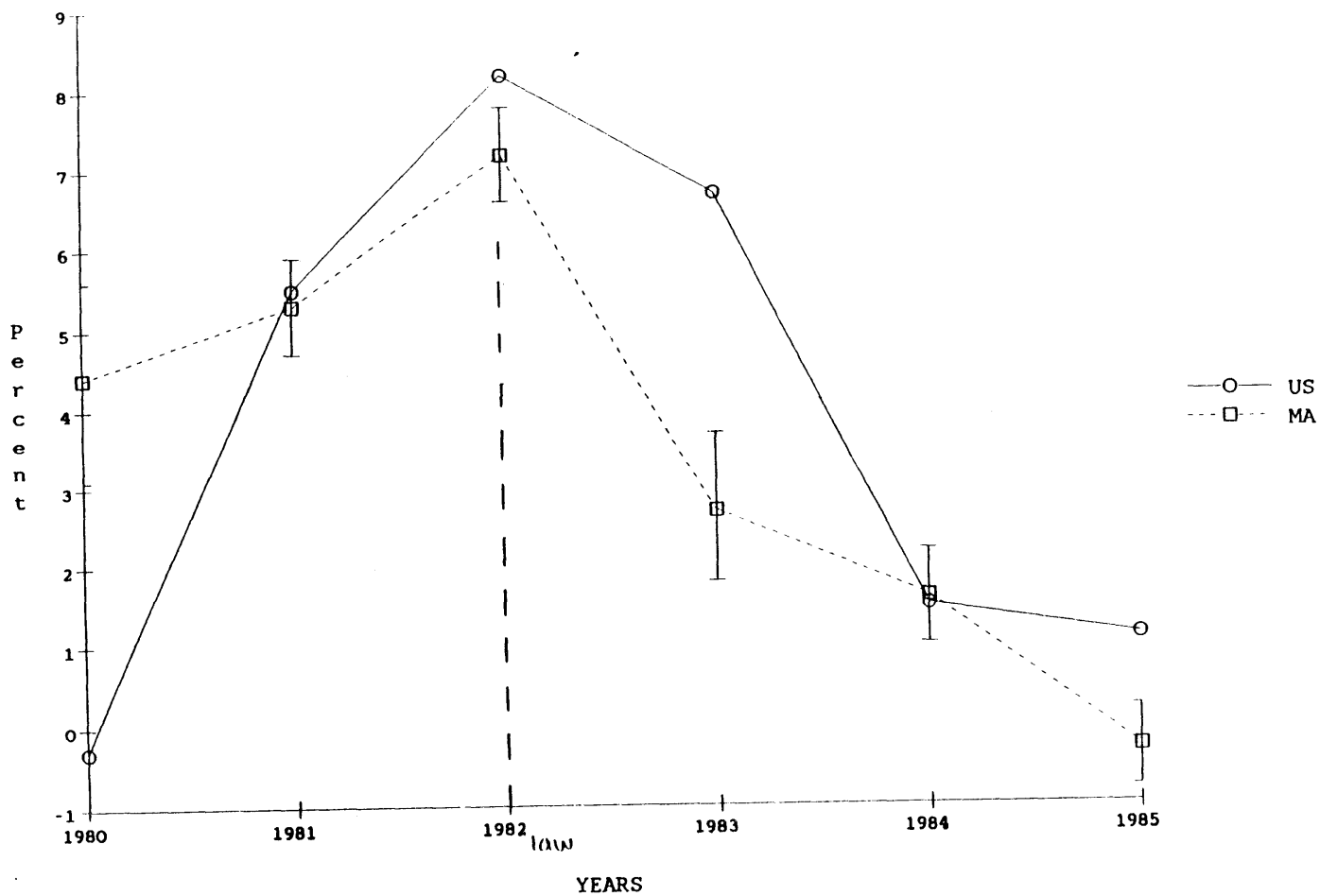


Figure 4.7 Comparison of MA and U.S. Rates of Change in Per Capita Costs, in Constant Dollars 1980-85



Statistical analyses reveal that MA, while appearing effective in controlling its costs, was in part mirroring national trends. (See Table 6, Appendix D for the statistical results.) Comparisons with national data consistently showed that MA was no more effective at controlling its costs or utilization than the rest of the country. Measures including costs per day, total patient days, average length of stay, and costs per admission failed to reveal any significant differences between the rates of change experienced in MA versus the rest of the country.

Despite the lack of significance, several findings should be highlighted because they do show lower rates of increase in costs in MA, even if statistically insignificant. Rates of increase in total costs, costs per capita, costs per discharge, and average length of stay were all lower for MA than the US.

In summary, when compared to its prior experience, there appears to be something different about the Massachusetts rates of change between the pre and the post C.372 periods. Rates of increase declined significantly for total costs, per capita costs, and

total patient days. Significant differences between annual rates of change in the years immediately prior to and after the law's implementation supported the hypothesis that the law was responsible for bringing the costs and utilization down. Data on the Northeast lent further evidence that the law was effective in bringing down costs. Compared with very similar patterns of utilization, MA outperformed this highly regulated group in terms of both reduced rates of increase in total costs and costs per day. Without C.372, the state would have probably replicated regional trends in costs and utilization and compared to these, the law appears to have been more effective at controlling costs.

Chapter 372 was implemented at a time of national concern for increasing costs of hospital care. Numerous private and public initiatives to contain the rates of increase in hospital costs were being instituted across the country, with hospitals everywhere adopting strategies to effectively compete for a dwindling pool of third party dollars. Given these broad forces, it should come as little surprise that MA failed to distinguish itself from the nationally occurring downward trends

in utilization and costs. Despite several findings that MA was more effective than national trends at reducing the rates of increases in costs and utilization, these findings were not significant. As suggested previously, this finding should not however, be interpreted to mean that without the law MA would have experienced identical reductions. Comparisons to national data tend to underestimate the effects of the law because of the variety of rate setting programs in place, especially the implementation of the Prospective Payment System for Medicare.

4.3 RESULTS: HOW DID THE LAW CONTAIN COSTS?

The first section concluded by suggesting that the law was successful at reducing the rate of increase in costs, but that some of the declines may have occurred regardless of the law due to national trends in declining utilization and costs. The remaining sections in this chapter analyzes the responses of the industry to the law. This section looks at the several specific objectives written into the law to shift and reduce utilization, with

the overall goal of containing costs. These objectives are evident in the structuring of the volume incentives and the use of volume corridors and marginal cost pricing. These objectives can be seen as the "tools" that the law uses to reduce the rate of increase in real hospital costs. The questions are: If hospital cost increases were reduced, how were they achieved? Did the explicit incentives work?

This section assesses the law's effect on:

- Inpatient volume,
- Outpatient service use,
- Ancillary service use, and
- Unintended effects of the law.

Again, T tests were used to evaluate the significance of the differences in the rates of change on pre-post comparisons and on annual rates of change. These tests will indicate whether any observed differences were statistically significant. Unfortunately, in many cases national and regional data of sufficient detail were not available to me so I can only assess the

significance of the changes in the context of pre-versus post-Chapter 372 behavior for most of the analyses. While a pre-post MA comparison will inform policy-makers about which aspects of the law appeared to have worked, they do not address the larger question of whether specific changes actually reflect national trends.

4.3.1 Inpatient Volume

The law provides clear incentives to decrease inpatient volume. This section looks at the total number of days and discharges and their effect on average length of stay (ALOS). I compare these state trends to national trends in order to fairly assess the results of the law. Figures 4.8 - 4.10 show changes in Massachusetts, northeast, and national per capita days, per capita discharges, and ALOS. Discharges remained fairly constant until 1984-85, when they began to decrease but at a slower rate than total days. The data indicate that MA, while experiencing declines in both per capita days and admissions, failed to meet national rates of decrease. Thus, not only does MA continue to have much higher utilization, but its rates of change are

Figure 4.8 Changes in MA and US Admissions per 1000 Population

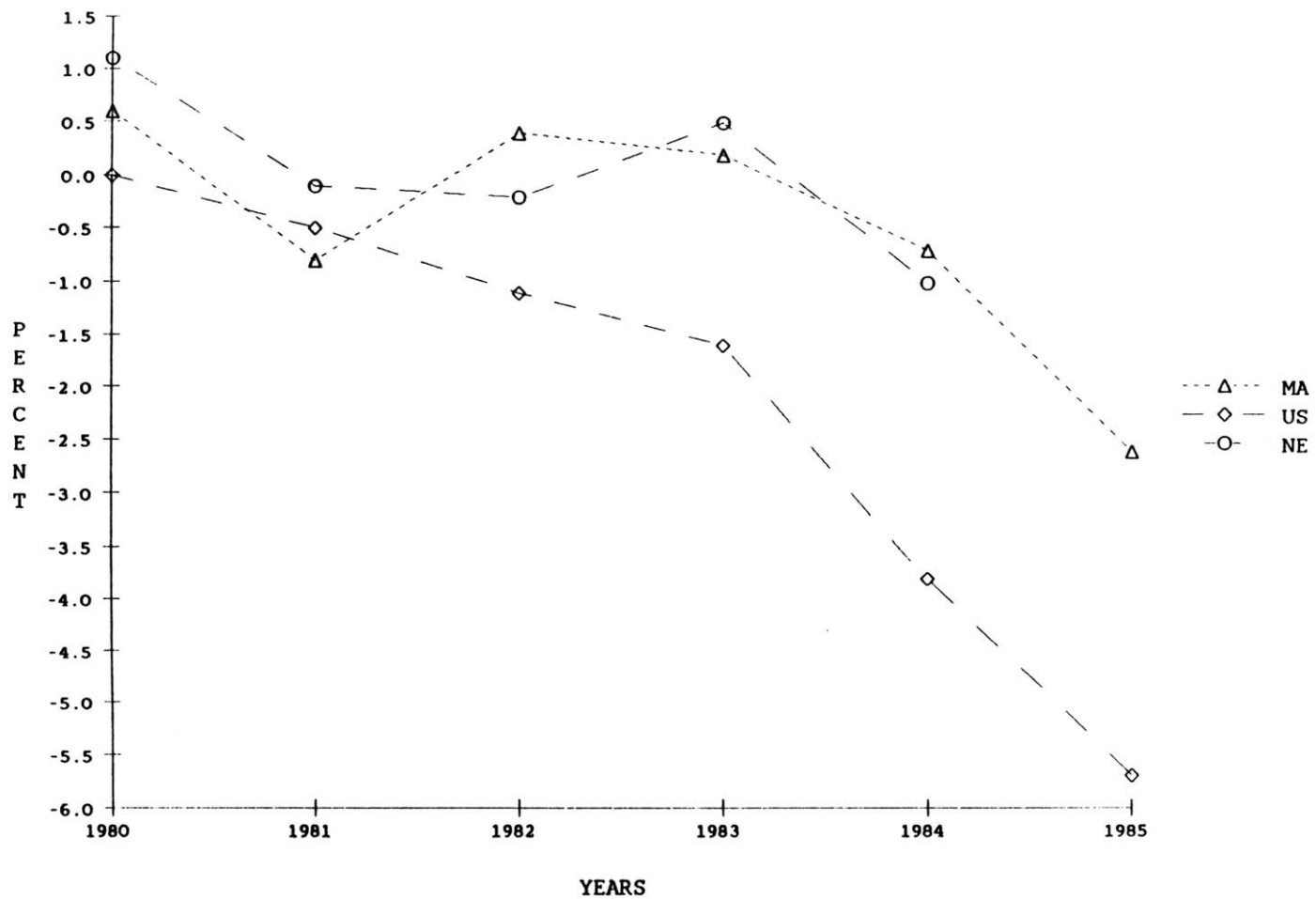


Figure 4.9 Change in MA and US Patient Days Per 1000 Population

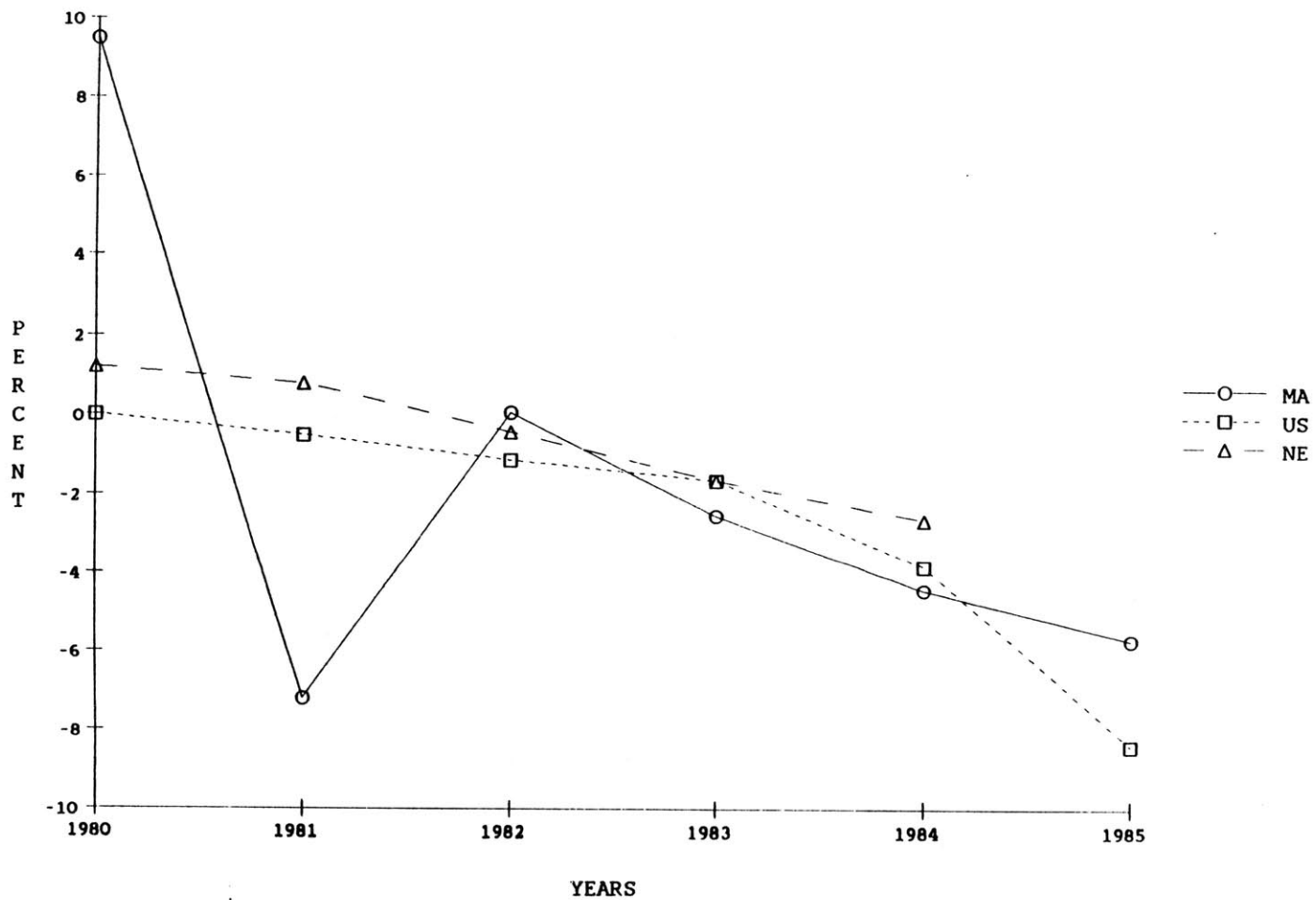
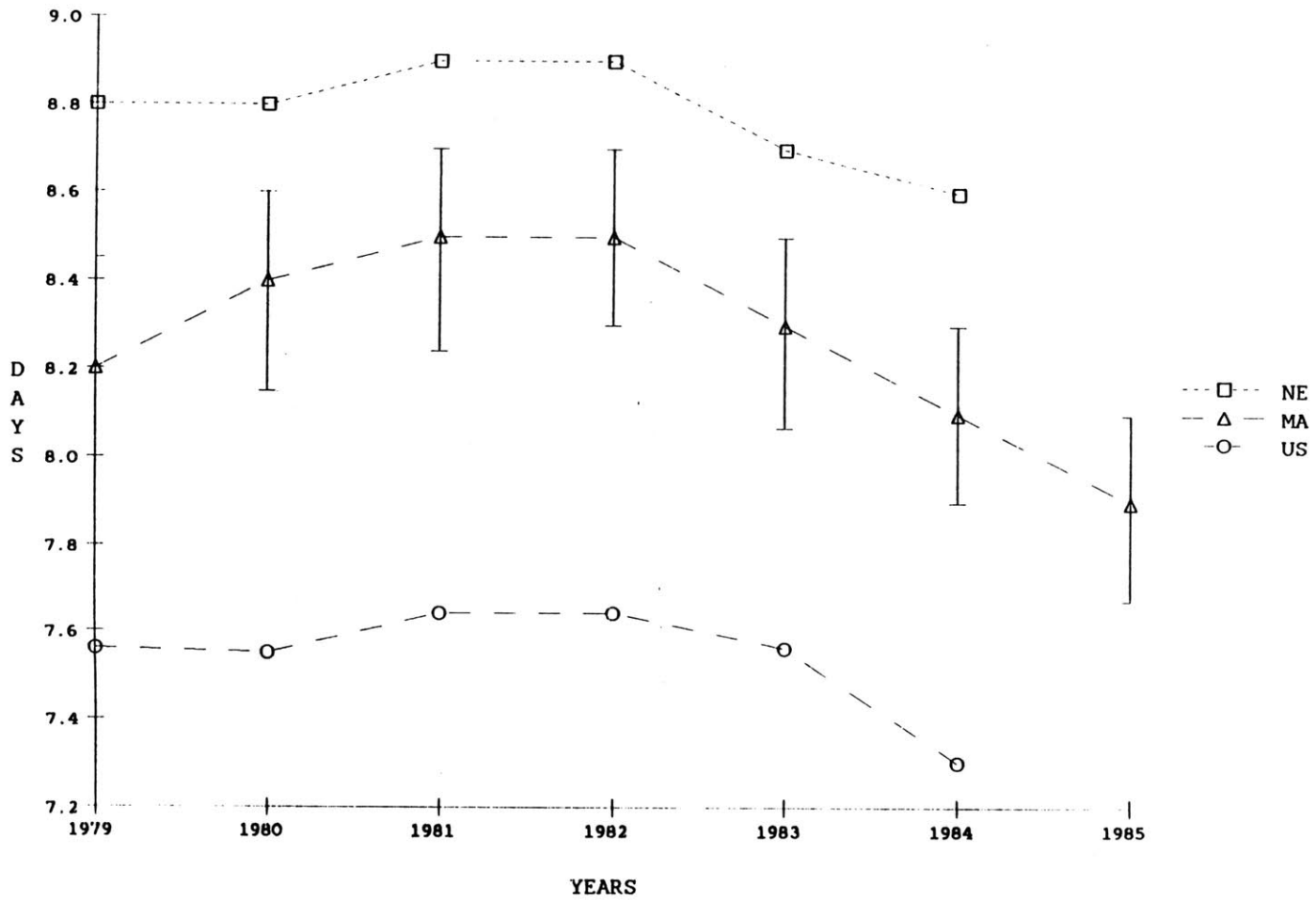


Figure 4.10 Comparison of MA, Northeast, and US ALOS



slower than national experience. While declines in the three measures of volume outpaced MA even prior to Medicare's enactment of the Prospective Payment System (PPS), the rates of decline further outpaced MA after the shift in payment policy.

Analyses (see Table 7, Appendix D) of MA trends in admissions, discharges, and ALOS prior to C.372 and after the law was enacted showed:

- a significant 5.9% decline in days between pre and post C.372, with significant difference (-3.7% and -8.0%) in the rates of changes between 1983-84 and 1984-85. This latter result indicates an acceleration in the decline in days.
- no significant drop in discharges pre-post (-2.4%)
- length of stay decreased due to the relative decrease in days. The change in the length of stay in the period after the law's implementation was significantly lower (-3.5 percent) than the change before the law. In addition, the rate of change in the ALOS dropped immediately (a significant -2.5

percent) following the law's implementation.

Comparing MA with regional and national data put these seemingly significant results in a broader perspective. As discussed previously, analyses done to compare these experiences revealed that MA fared no better than national or regional trends. (Table 8, Appendix D for the statistical results.) The reasons for these national declines were discussed previously (increased competition between hospitals, increased competition from other providers, increased efforts by insurers and large employers to curtail hospitalizations and lengths of stay, and the growth of managed health care systems that have lower rates of hospitalization.) In addition, the results may be in part due to the dramatic effects the Medicare PPS (began in October 1983) and its "halo" effects on non-Medicare patients. I would have to conclude that the law is coincidental to national trends that could equally explain these reductions. Attributing successful reductions to the effectiveness of the law would be incorrect.

Inpatient Costs

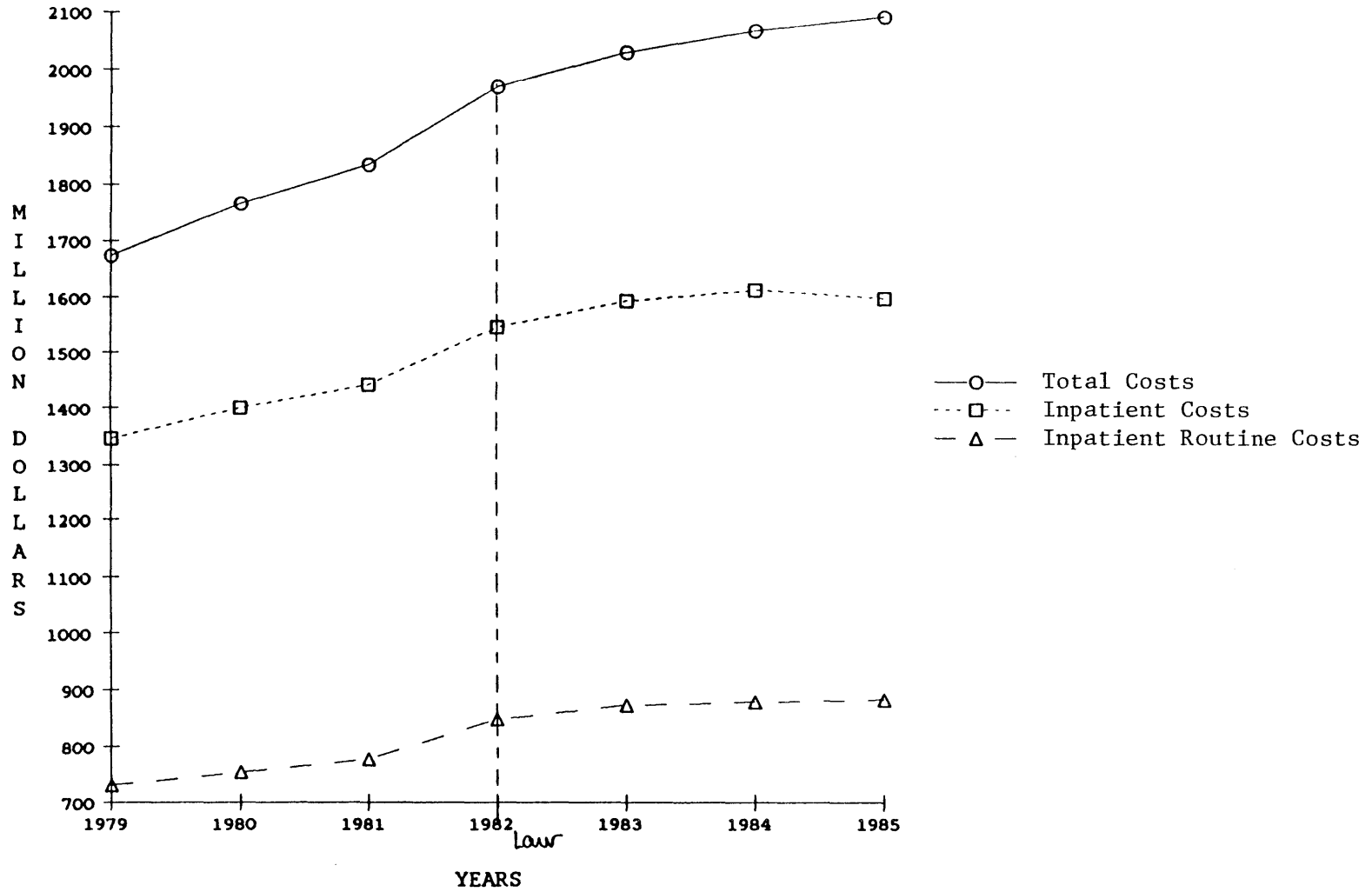
Turning to costs, I wanted to know if hospitals

had decreased inpatient costs relative to total costs. This result would help to assess whether or not hospitals had responded to the law by decreasing their inpatient component. Figure 4.11 shows total costs, inpatient costs, and the breakdown of inpatient costs into routine and ancillary costs. Analyses of the proportion of inpatient to total costs before and after the law revealed that the proportion dropped an in significant 0.2 percent. (See Table 9, Appendix D.)

Further examination of the inpatient costs indicated that the breakdown of these costs (into routine--room and board costs--and ancillary costs) changed significantly. The routine component of inpatient costs dropped substantially during the first year after the law's implementation (from a 7.6% increase in 1981-82 to a 1.1% increase in 1982-83.) A pre-post comparison of inpatient routine costs as a percent of total costs indicates a significant 6% drop between the two periods. (See Table 10, Appendix D.) These results reflect the declines in the average length of stay already noted. This is because the days at the end of any hospital stay are the least intensive so that the

costs per day increase in part due to the shorter length of stay (also previously discussed.) Therefore, as a proportion of total inpatient costs, the routine component would comprise an increasingly smaller share of the total inpatient costs. In addition, given that case mix at hospitals was increasing, increased ancillary costs relative to the length of stay would also contribute to this result.

Figure 4.11 Total Costs and Total Inpatient Costs in Constant Dollars
1979-85



4.3.2 OUTPATIENT SERVICES

Chapter 372 had a variety of incentives for hospitals to increase outpatient volume, including:

- full average unit costs for increases in clinic and emergency room visits (actual costs would be some proportion of full costs) AND generous downside corridors for decreases up to seven percent in inpatient services (payment for costs as if volume--and actual costs-- had remained unchanged)
- a 2% upside corridor for increases in outpatient ancillaries before marginal cost pricing became effective AND large downside corridors for decreases in inpatient ancillaries (effectively double payment for the first two percent shifted to outpatient, and 160% of full average unit costs for the next five percent shift)
- full average unit costs for up to three percent increases in day surgery minutes, and a generous 80% marginal cost payments for units beyond the three percent increase.

This section assesses the effect of the law on

outpatient volume.

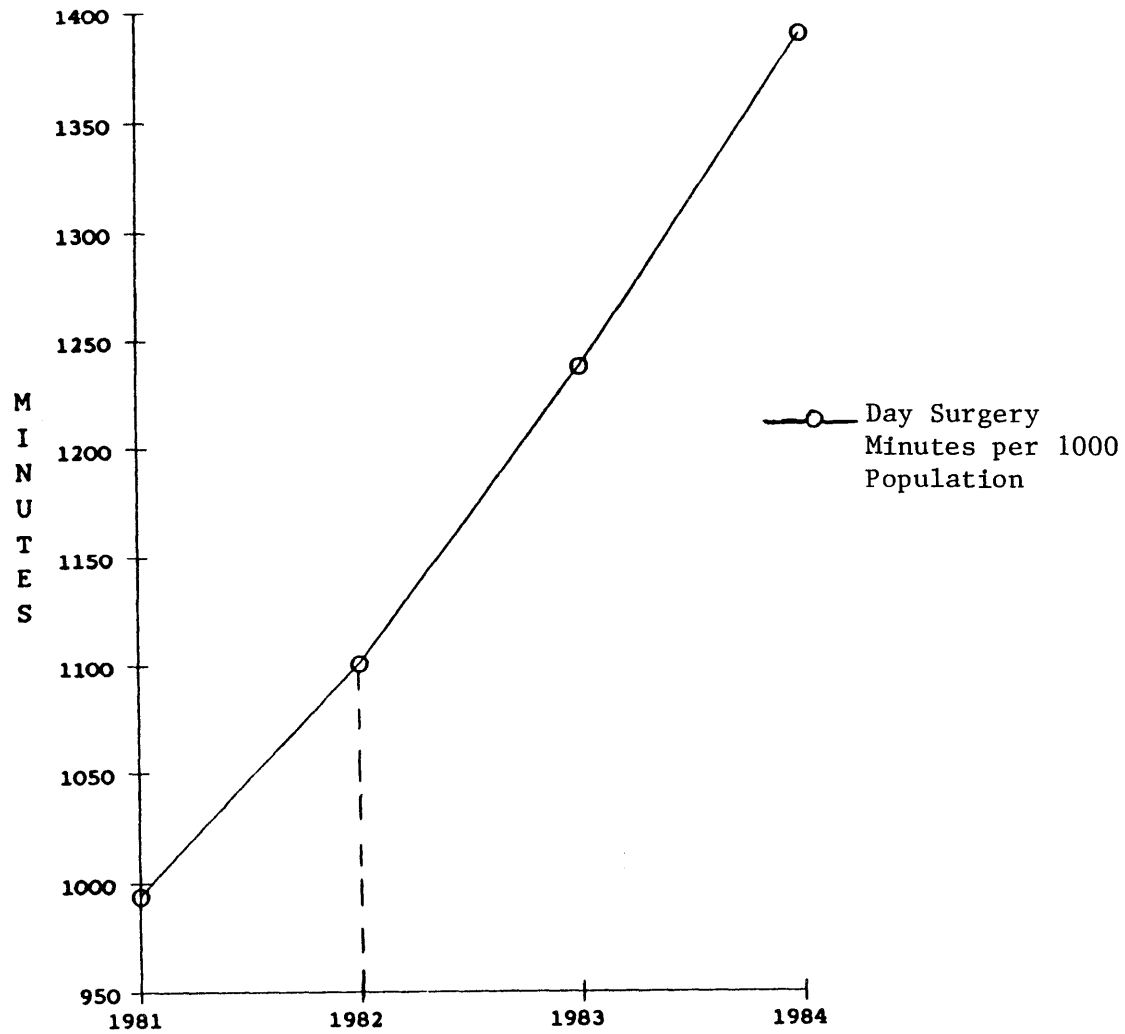
Outpatient Volume

The incentive to encourage day surgery is analyzed. Unfortunately, due to inconsistent reporting, examining changes in outpatient visits is not possible. They will be indirectly measured in the next section on outpatient costs.[1] Outpatient ancillary service use is discussed in the next section.

Figure 4.12 shows the Massachusetts trends in day surgery minutes. It is immediately apparent from this figure that large increases in day surgery programs began well before Chapter 372 was implemented. Cost data from Massachusetts hospitals indicate that many hospitals expanded their outpatient capacities between 1979-81. Figure 4.12 depicts the rapid increases in these programs both before (11% per year) and after the law's implementation (13% per year.) Statistical tests done on the increases in day surgery volume 1980-84 indicate no difference in the per capita use between the pre- and the post-C.372 periods. (See Table 11, Appendix D for statistical results.) I would

1. The problem with the outpatient visits data is that hospitals switched from recording visits (one appearance at the OPD) to occasions of service (a visit consists of one or more occasions of service--an x-ray, lab test, or other procedure.

Figure 4.12 Day Surgery Minutes Per 1000 Population

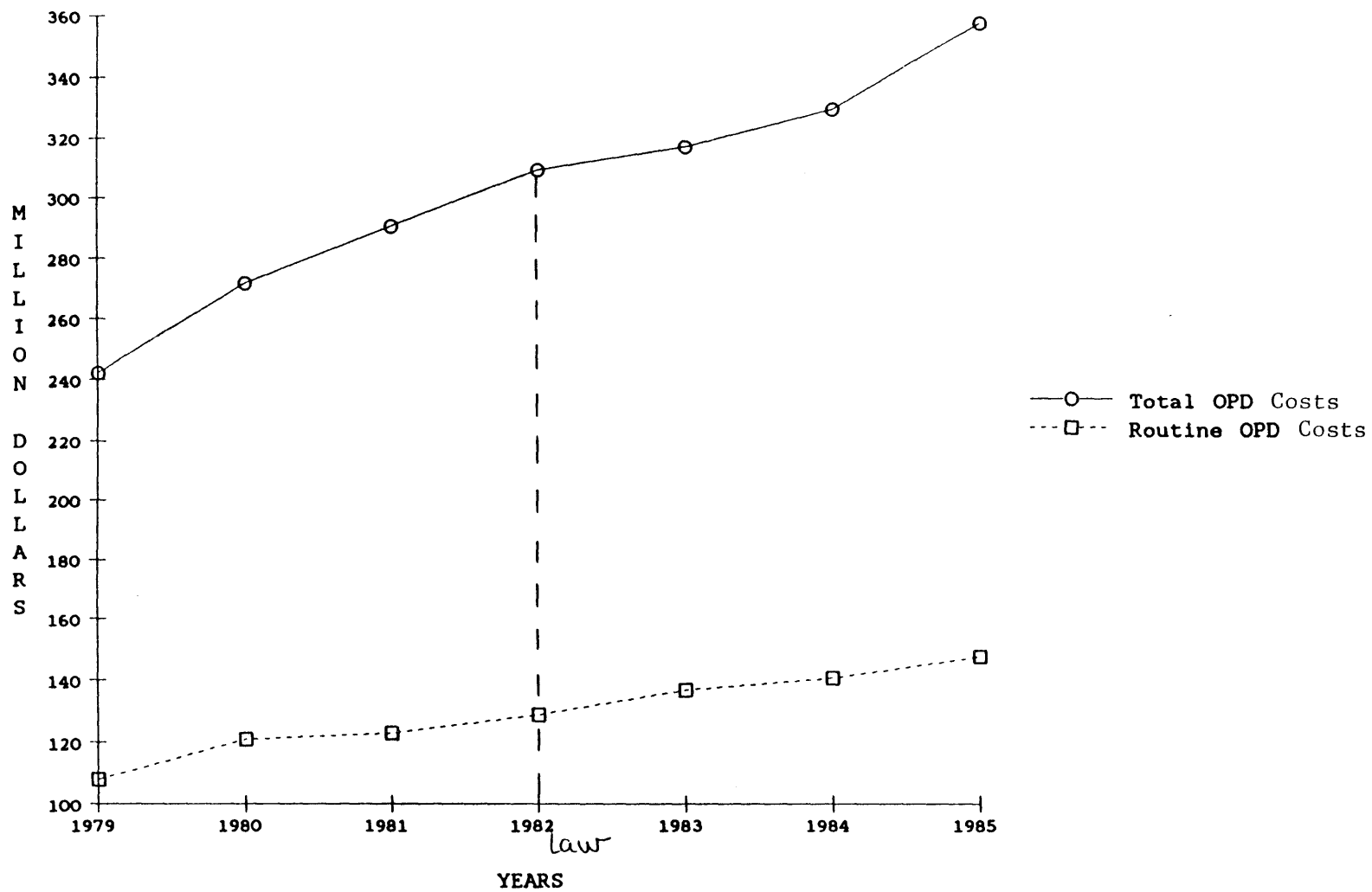


conclude that volume had already been increasing at large rates, and that the law did not significantly change these preexisting trends. Rather, hospitals appear to have responded to increased pressure from alternative providers and sought to expand this service-- prior to and regardless of the law.

4.3.3 Outpatient Costs

Due to the substantial data problems in the reporting of outpatient volume (discussed in Appendix C), outpatient costs were used as a surrogate measure to validate the volume findings and to indicate shifts from inpatient to outpatient. Figure 4.13 shows the increases in outpatient costs, the breakdown into routine and ancillary costs, and outpatient costs as a percent of total costs. It indicates that hospitals experienced increases in outpatient departments in the early eighties, prior to C.372 and that the law had little impact on encouraging this already large growth rate, shown below.

Figure 4.13 Total Outpatient Costs, Routine, and Ancillary Costs Broken Down, in Constant Dollars 1979-85



Changes in Total
Outpatient Costs

Period	mean percent increase
1979-80	11.2
1980-81	7.8
1981-82	8.0
1982-83	3.1
1983-84	4.2
1984-85	8.0

In fact, comparisons of the changes in outpatient costs as a percent of total costs before and after the law show the rates of increase before the law were 0.5% higher than those after the law, a statistically insignificant difference. (See Table 12, Appendix D.) These results point out a couple of interesting trends. First, especially high rates of increase (1979-80) did not continue. As new programs became established, their rates of growth tapered off, hence the reduction in the rates of increase. Second, the responses of the hospitals appeared to have been lagged a year before increases in outpatient costs took off. This response is not too surprising, since changes in outpatient services could require changes in physician behavior, which in turn takes time. And despite very large increases in the rates of change 1984-84 and 1984-85 (4 and 8 percent, respectively), because the rates of increase before the law (1979-81) were equally large (12 and 7 percents, respectively), there was no overall difference in the rates

of change between the pre- and post- periods.

4.3.4 ANCILLARY SERVICE UTILIZATION

The law includes incentives to reduce and shift ancillary utilization from the inpatient setting to the outpatient department. The operating assumption here is that it is cheaper to provide ancillary services in an outpatient setting than in an inpatient one. Specifically, the inpatient ancillary volume adjustment allows hospitals to decrease ancillary use and to get paid as if volume had remained unchanged. There is no downside corridor, meaning that marginal cost pricing never applies to volume below a certain cutoff point. Conversely, hospitals were careful to protect themselves from increasing case mix which would increase ancillary volume. Ancillary volumes are automatically adjusted upwards every year by four percent, with 60% marginal costs paid for these increases. Essentially, then, ancillary costs are automatically increased every year 2.4% (60% times the 4%). For increases beyond the four percent, marginal costs are paid a neutral 30% of direct expenses plus 15% of indirect expenses.

On the outpatient side, ancillary volume can increase two percent before marginal costs are paid. Similarly,

volume can decrease five percent before payments are reduced to the 60% of full unit costs. Thus, volume increases are paid a generous full unit price for the first two percent increase (presumably as a further incentive to shift inpatient volume to the outpatient department), but volume decreases are also encouraged with full payments for volume decreases up to five percent.

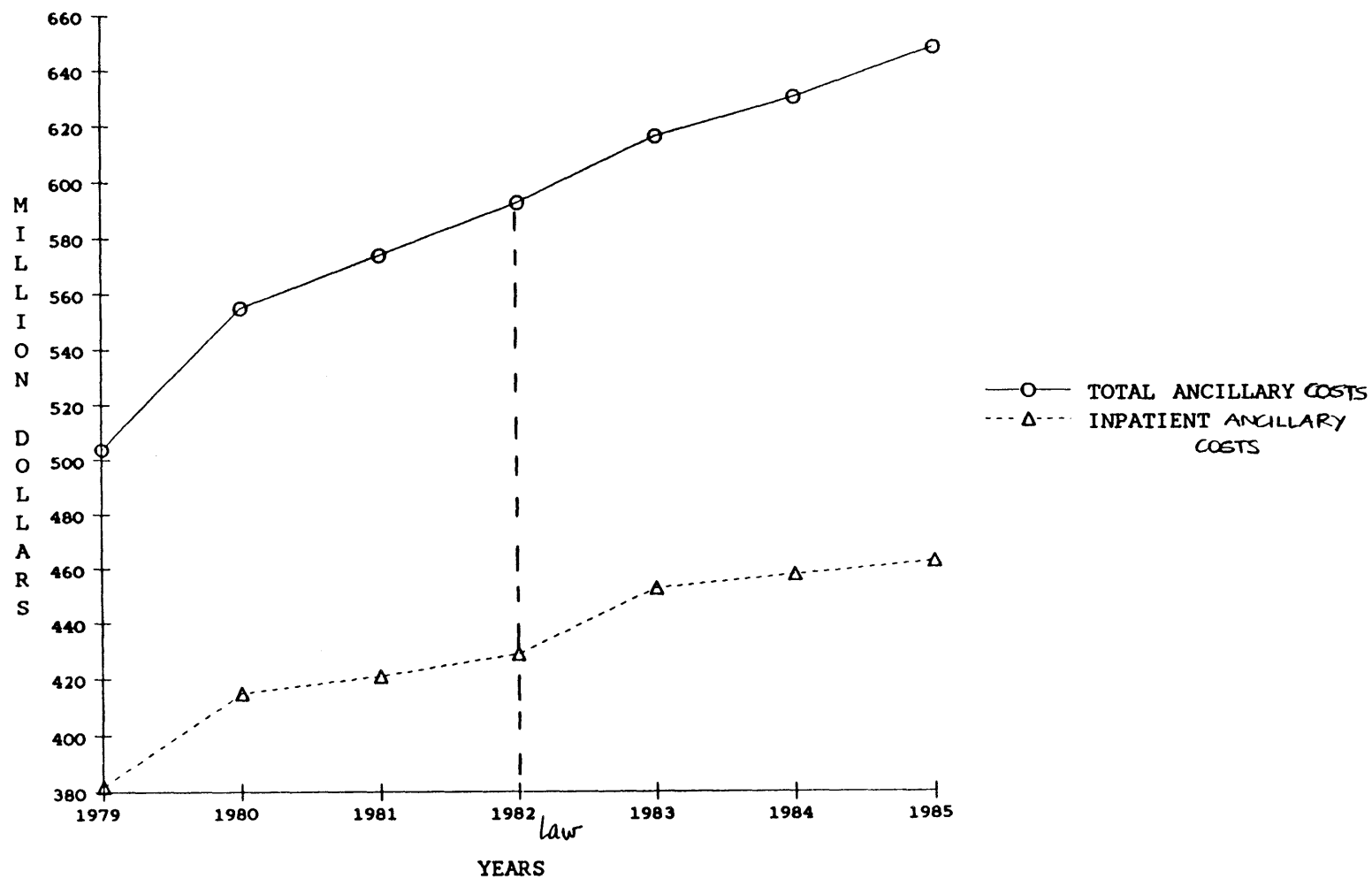
In sum, the law protects those hospitals experiencing increases in ancillary use but provides incentives for hospitals to reduce utilization. Inpatient to outpatient shifts are encouraged by paying for shifted ancillaries twice-- once on the inpatient side since volumes can decrease without any reductions in payments, and again on the outpatient side with allowable increases of up to two percent before marginal pricing applies, and even then the 60% marginal costs paid are in addition to payments already made on the inpatient side.

The analyses of ancillary volumes use costs as a proxy. While this is not a perfect measure, it is preferable to the volume data which is of relatively poor quality, especially in the earlier years. Not only were departmental statistics inadequately broken out, but many ancillary departments converted units of measurement in the period 1979-81. In addition, aggregate volume statistics for

earlier years were not available since uniform reporting units were not required until 1981. Uniform reporting units are critical to aggregating total ancillary volume since without standardized measurements, combining tests, films, and other units of measurement undervalues complicated ancillary tests and overvalues the simpler ones.

Figure 4.14 shows the increase in total ancillary costs, along with the split between inpatient and outpatient. The graph shows that the rate of increase in ancillary costs almost halved after the law's implementation. Ancillary costs continued to increase despite the law's incentives, perhaps due to increases in the intensity of case mix. (Case mix intensity has increased 1.2%, 1.3%, 2.2%, and 2.3% during the periods 1980-81, 1981-82, 1982-83, and 1983-84, respectively.) Interestingly, OPD ancillary costs were constant for the first year, reflecting a lag in the effect of ancillary incentive to shift use to the outpatient department. This delayed response is understandable given the required education and changes in physician practice patterns. The inpatient component of total ancillary costs grew more slowly than total ancillary costs, reflecting large increases in OPD ancillary costs (4% in 1983-84 and 10.8% in 1984-85.)

Figure 4.14 Ancillary Costs : Total, Inpatient, and Outpatient Costs, in Constant Dollars, 1979-85



	79-80	80-81	81-82
%chg in total ancil	.0964	.0387	.0426
%chg in OPD ancil	.1450	.0326	.0836
%chg in inp. ancil	.0761	.0449	.0281
	82-83	83-84	84-85
%chg in total ancil	.0209	.0267	.0283
%chg in OPD ancil	.0008	.0438	.1084
%chg in inp. ancil	.0206	.0206	.0122

Analyses were done to determine if (1) the proportion of ancillary costs to total costs changed between before and after the law, to indicate if ancillary costs were declining more rapidly than total costs and (2) the proportion of inpatient ancillary costs to total ancillary costs had changed, to indicate if ancillary use was shifted from an inpatient to an outpatient setting. The results (shown in Table 13, Appendix D) indicate that while inpatient ancillary costs as a proportion of total ancillary costs did drop a significant 4.5%, total ancillary costs did not drop any significant amount.

The other ancillary incentive was to shift use from the inpatient setting to the outpatient department. Analysis of this hypothesis revealed that outpatient ancillary costs increased 5% (a significant result) between pre and post periods, while inpatient dropped this same percentage.

Examination of the annual rates of change in outpatient ancillary costs indicate that (1) there was a lag period of about a year before ancillary use appears to have been shifted to the OPD, and (2) there was a significant increase in the proportion of outpatient ancillary costs to total ancillary costs during 1983-84, indicating a shift in locus of ancillary service delivery, and (3) an (insignificant) decrease in the proportion of outpatient ancillary costs to total ancillary costs in the period 1984-85, most likely due to increases in case mix on the inpatient side.

4.3.5 Unintended Effects of the Law

The law encourages hospitals to reduce costs and pocket the differences between budgeted and actual costs. Possible unintended areas of hospital cost containment include reductions in the costs of overhead (excluding capital for reasons previously discussed), education, and salaries and wages. Each is discussed below. (See Table 14, Appendix D for results.)

Overhead

Overhead costs (excluding capital) include such items as plant maintenance and operations, laundry, dietary, cafeteria, medical records, central services, housekeeping,

and a variety of administrative costs. Because this area is easily within the control of the administrator, I expected it to be a prime target for improved efficiencies for many hospitals and to see significant reductions. The results of the analyses revealed that hospitals immediately cut overhead costs (from 6% increases 1981-82 to 1.2% increases in 1982-83), with significant differences in the rates of increase between the year prior to and just after the law's implementation. In subsequent years, the results are mixed. Overall, the post-C.372 rates of increase in overhead costs were 7 percent lower than the increases in the pre-C.372 period. I conclude that overhead costs were the target of immediate savings and once achieved, there was little more to trim.

Education Costs

Education expenses include the costs of nursing education, teaching of medical students, and post-graduate medical education (interns and residents.) For those hospitals reporting costs in these categories, T tests indicate that there was no effect on hospital spending in these areas (a meager -0.1 percent difference between the pre- and the post-periods.) I suspect these areas are fairly well protected from budgetary cuts, since teaching is at the core of these hospitals' mission.

Salaries and Wages

Labor costs, being a large portion of hospitals' budgets, are an obvious target for cost containment. Labor unions and nurses associations were quite concerned when the law was first implemented about proposed cutbacks and layoffs. MHA conducted a survey about two months after the law's enactment and found that about 2% of the total 145,000 jobs were estimated to be eliminated. Of these, 44 percent were to be achieved via attrition, 35 percent through the elimination of vacant positions, and 20 percent through layoff.[2] A previous nursing shortage appeared to virtually evaporate.[3]

Analyses show that labor costs were not significantly affected by C.372. Labor costs as a percent of total costs rose a significant 2.6 percent in the post-C.372 period, most likely reflecting the reductions in the rates of increase in total costs rather than any real increase in labor costs. Hospitals appeared to have spared their staff in making budgetary cuts, although because costs only

2. Massachusetts Hospital Association, Monday Report, (Burlington MA: MHA), Vol.XI, No.9, February 28, 1983.

3. Betsy Lehman, "Turnabout: For the First Time in Years, The Supply of nurses is Far Exceeding the Demand", Boston Globe, July 23, 1983.

approximate staffing patterns, it is impossible to conclude that staff reductions did not take place. For example, the trend towards having registered nurses with bachelor's degrees would increase nursing costs. Lower paid licensed practical nurses may have been laid off, with fewer higher paid personnel replacing them.

Bad Debt and Free Care

Under the provisions of Chapter 372, the private sector has fully paid for the costs for bad debt and free care at all but a handful of hospitals.[4] The law allows these costs to be passed through, thereby discouraging these costs from being the target of cost containment efforts. While this does not represent a fundamental change in policy, since these costs were previously included in the charges paid by the charge payers, it did change the timeliness of payments and payer liabilities for uncompensated care. This shift in the mechanics of payment appears to have made a significant difference in the amount of uncompensated care provided by the MA hospitals.

Results of these analyses showed that bad debt and free care increased significantly between 1982-83, when the costs

4. Chapter Five discusses the provisions for the payment of uncompensated care and the substantial changes it has undergone in the past four years.

increased 14% percent. Given that total patient days declined during that year, the payer mix of these days must have shifted considerably during this year. One possible explanation is that the previous mechanics, while in theory adequately providing payment for these services, in reality resulted in a disincentive to provide uncompensated care. In addition, the new payment system may have been perceived as reflecting an increasing commitment on the part of the payers and the state to address this problem. Hospitals may have growing confidence that provision of uncompensated care will not undermine their long-run financial viability. Of note, because this sample excludes the municipal hospitals, the increase in uncompensated care may reflect a general redistribution of the responsibilities of providing this care within the hospital system, rather than an increase in the total amount provided systemwide.

4.3.6 What Happened to Hospital Revenues?

One final set of analyses helps to assess the overall impact of the law on hospitals. These analyses focus not on actual costs, but on the levels of payments hospitals received. Remember that being a budget-based system, hospitals will receive the budgeted amount determined by

formulae outlined in Table 3.5. The difference between actual costs and what is termed "basis of payment" reveals the savings ("profits") accrued to hospitals.[5] This overall incentive to control costs below the budgeted levels is supposed to be the key incentive driving the whole system. Breaking the basis of payment down into its components sheds light on which aspects of the hospital budgets are particularly inflationary and which ones are being held to reasonable levels of increase. Last, an analysis of profit margins will tell us whether the law is having an adverse effect on the health of the industry.

Total Basis of Payment[6]

"Basis of payment" (BOP) is the total budgeted cost of a hospital that is paid for by the payers. The BOP is divided up between the payers, with slight variations previously discussed in Chapter 3. Total actual 1981 costs are adjusted annually for inflation, and changes in volume and costs to arrive at 'maximum allowable costs.' Then,

5. It also suggest savings that ought to be passed onto consumers in the form of lower insurance premium increases.

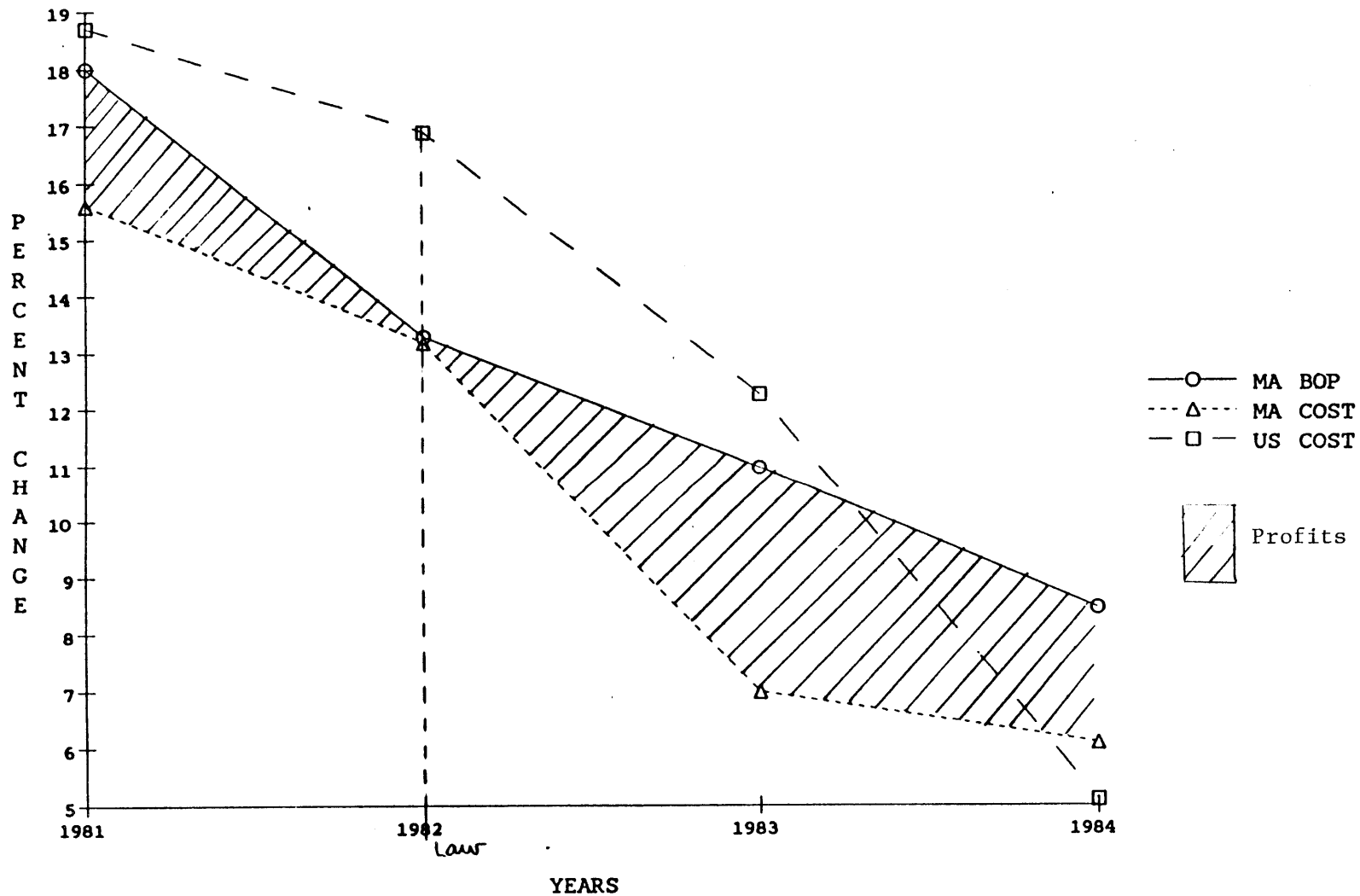
6. All data presented in this section are taken from the report prepared by the Policy and Evaluation Department, Health Care Reimbursement, Blue Cross of Massachusetts, "Blue Cross Hospital Agreement 29: A Three Year Review" (Boston MA, 1985.)

costs outside this budget-based system are added in (capital, malpractice, accruals, bad debt, and free care) to arrive at the "basis of payment." Figure 4.15 depicts the rates of change in these basis of payment, actual costs, and national increases. Note that costs have not been deflated.

Several points about this graph ought to be made. First, though the increase in costs declined quite sharply with the implementation of Chapter 372 (increases of 7% versus 13.2% for the previous year), the hospitals were cushioned against this drop in costs with the budget determined payments. Basis of payment declined but not nearly at the same rate. Second, the decline in costs were in part a reflection of declining costs nationally. Still, Massachusetts costs dropped more quickly 1982-83 than national costs, presumably in response to the law. However, by 1984, following the advent of PPS, national rates of increase in costs were lower than those of Massachusetts and well below the payment levels. Now, it appears that the payment system cushions hospitals from national trends and from their own actual costs.

Without C.372, Massachusetts would probably have fared poorly under the PPS system, given its high ALOS and costs per discharge. Estimates of the impact of PPS on hospitals

Figure 4.15 Comparison of National Cost Increases to MA Basis of Payment and Cost Increases 1981-84



in the New England region show that 63% of the hospitals would have had shortfalls in the range of 4% of total costs in the first year of the PPS system.[7] This estimated poor performance of the New England hospitals reflects the region's high utilization rates (in terms of hospitalization rates and ALOS) and the attendant costs, both in terms of costs per day and per discharge.[8] Although this protection may seem overly generous, it is exactly by design. That is, through this payment system hospitals were able to make two trends--declining utilization and increased cost controls--work to their financial advantage. The hatched area on the graph depict the payments in excess of actual costs, as inducement to reduce their costs.[9]

7. See Michael L. Vaida, "DataWatch: The Financial Impact of Prospective Payment On Hospitals", Health Affairs Spring 1984, Exhibit 2.

8. In 1984 New England the average length of stay was 8.0 days and costs adjusted admission were \$3396.77, while the US comparable figures were 7.3 days and \$2995.28. See AHA Hospital Statistics (Chicago: AHA, 1985).

9. Because these overpayments represented incentives to the hospitals to control costs, consumers did not benefit from these decreasing inflation rates. The law did not provide for any sharing of savings with payers.

Components of the Basis of Payment

Blue Cross has compiled figures on the components of the basis of payment for the period 1981-84 providing some interesting insights into the prospectivity and leniency of the payment system. Table 4.16 outlines the Basis of Payment and its components. It shows for example, that inflation is by far the largest component of annual increases in the payments made to hospitals, accounting for over half of the adjustments made.

The second largest increases were for changes in volume, contributing 18%, 20% and 17% of the increases in 1982, 1983, and 1984 respectively. Deflated for the annual inflation adjustments, the volume adjustment declined from \$67 million in 1982 to \$46 million in 1984. However, given national and MA trends of declining utilization, it may seem surprising that net volume adjustments are still positive. Remember that the law includes an automatic ancillary adjustment of 4% on ancillary costs (in theory to adjust for increasing complexity of cases). At 60% marginal costs, this represents an automatic increase of 2.4% of inpatient ancillary cost. This provision accounts for the bulk of the volume adjustment (25% in 1982 and 1983, and 14% in 1984.) In fact, the routine piece of the inpatient volume adjustments have dropped significantly since 1982, with fewer

Table 4.16 Percent and Dollar Increase in Basis of Payment (BOP)
by Component, 1981-84, in Thousands of Dollars

Component	1981	1982	% of Change	1983	% of Change	1984	% of Change
Prior Year BOP		3,078,503		3,488,378		3,874,357	
Adjustments (1)	-22,024	17,744	4.33%	-13,497	-4.47	-35,238	-10.72
Inflation	0	250,875	61.21%	204,998	53.60	206,023	62.66
Volume	0	72,574	17.71%	75,659	19.78	55,687	16.96
Exceptions	0	21,202	5.17%	36,995	9.66	54,114	16.49
Capital	223,524	26,201	6.39%	48,452	12.67	42,614	12.96
Malpractice	8,977	1,117	0.27%	1,958	0.55	1,324	0.35
Vacation/ Sick Accruals	6,577	3,516	0.86%	-2,701	-0.07	-3,843	-1.18
Bad Debt + Free Care	149,919	16,641	4.06%	34,116	8.93	8,441	2.59
<u>TOTAL BOP</u>	<u>3,078,508</u>	<u>3,488,378</u>	<u>100.00</u>	<u>3,874,357</u>	<u>100.00</u>	<u>4,203,479</u>	<u>100.00</u>

(1) Includes transition changes, one time exceptions (not rolled into the BOP) and base year adjustments.

Source: Policy and Evaluation Department, Health Care Reimbursement, "Blue Cross Hospital Agreement 29: A Three Year Review (Boston MA: Blue Cross of MA, 1985.)

hospitals requesting volume increases. It should be noted that while the number of hospitals requesting volume increases still appears to be high (65%), the amounts of the requests must be very small since the total routine volume adjustment (\$9.3 million) comprises only .002% of total Basis of Payment.

Inpatient Routine Volume Adjustment (in Dollars)

	Volume Increase	Percent Hospitals Requesting	
1982	20,429,588	73.7%	
1983	20,521,790	76.5	
1984	9,363,194	65.7	
	Volume Decrease	Percent Hospitals Requesting	Total Volume Adjustment
1982	1,573,856	19.2	18,855,732
1983	1,479,706	40.2	19,042,084
1984	1,788,196	30.4	7,574,998

In sum, volume adjustments, primarily for ancillary services, have constituted 17-19% of total payments made to hospitals between 1982-1984. Given that case mix is increasing, some of this adjustment may be reasonable. However, because hospitals can request exceptions for increases in case mix, it would appear that this volume adjustment is in large part duplicative and constitutes an

automatic give away to the hospitals.

Capital and exceptions accounted for an increasingly larger share of the annual adjustments, starting at 11% in 1982 and reaching 29% by 1984. The remaining categories of costs (adjustment to the prior year BOP, malpractice, accruals, and bad debt and free care) I would consider as uncontrollable-- they represent costs over which the hospitals have little choice in expending and little control over their price.

The two categories to watch in the future are capital and exceptions, both expenditures over which hospitals have total control. Capital costs have increased 55% during this period, with buildings and fixed equipment rising 45% and major moveable equipment rising 72%. In part, these increases reflect the delayed costs of projects held back during the cutbacks of the D.O.N. program in 1981. However, because their percent to total basis of payment increased (from 7.2% in 1982 to 8.1% in 1984) and the rate of growth is well above that for the total hospital, I conclude that the lag theory is only a partial explanation and that capital costs need restraining. Some of these costs may be capital substitutions for non-capital expenditures controlled by the MAC, for example, labor saving technology.

The other area of concern are the costs which are passed through as exceptions. These costs have risen a dramatic 155% over this period, with requests increasing 206% from \$55 million in 1982 to \$168 million in 1984. Although approval rates have declined during this period, the possibility of exceptions draws into question the extent to which the budgeted system is prospective. In fact, these two categories alone seriously undermine the prospectivity of the payment system. When combined with the retrospective aspects of the inflation allowance and volume adjustments, the actual risk taken by the hospitals is relatively small. Hospitals are not at risk for increases in costs that are related to changes in volume, case mix, inflation, capital projects and equipment and their associated operating costs, and bad debt and free care--in fact, leaving very little risk. Combined with the rewards of the system, hospitals could actually fare quite well under this new payment system.

4.3.7 Financial Performance of the Industry

Given that the degree of risk taken by the hospitals is at least open to question, it is instructive to see how well the industry performed financially. Chapter 372 allows

hospitals to keep the differences between basis of payment and actual costs. Hospitals with decreasing volume could pocket the total difference (up to a seven percent decline in volume.) Conversely, hospitals with increasing volumes may have reduced profits due to the payment of marginal costs for increases in volume. Hence the question, how did the industry as a whole fare under the payment system? This section looks at industry trends in profits (revenues minus expenses), while the next section "Patterns of Responses" examines which hospitals appear to have performed well and the strategies used to retain good financial standing.

The following tables indicate the financial performance of the industry between 1979 and 1985. Figure 4.17 shows that the law initially had a positive effect on the financial position of hospitals. Between 1982 and 1983 profits increased 33 percent, while in 1983-84 they increased almost 24 percent. Interestingly, this trend did not continue 1984-85. While still profitable, hospitals did not see increases in their profit margins. Table 4.18 presents profits as a percent of total revenues.[10] What

10. Profits as a percent of total revenues was used to adjust for hospital size. Obviously, larger hospitals would be expected to have larger profits, but this is hardly a statement about their profitability.

Figure 4.17 Profits in Constant Dollars 1979-85

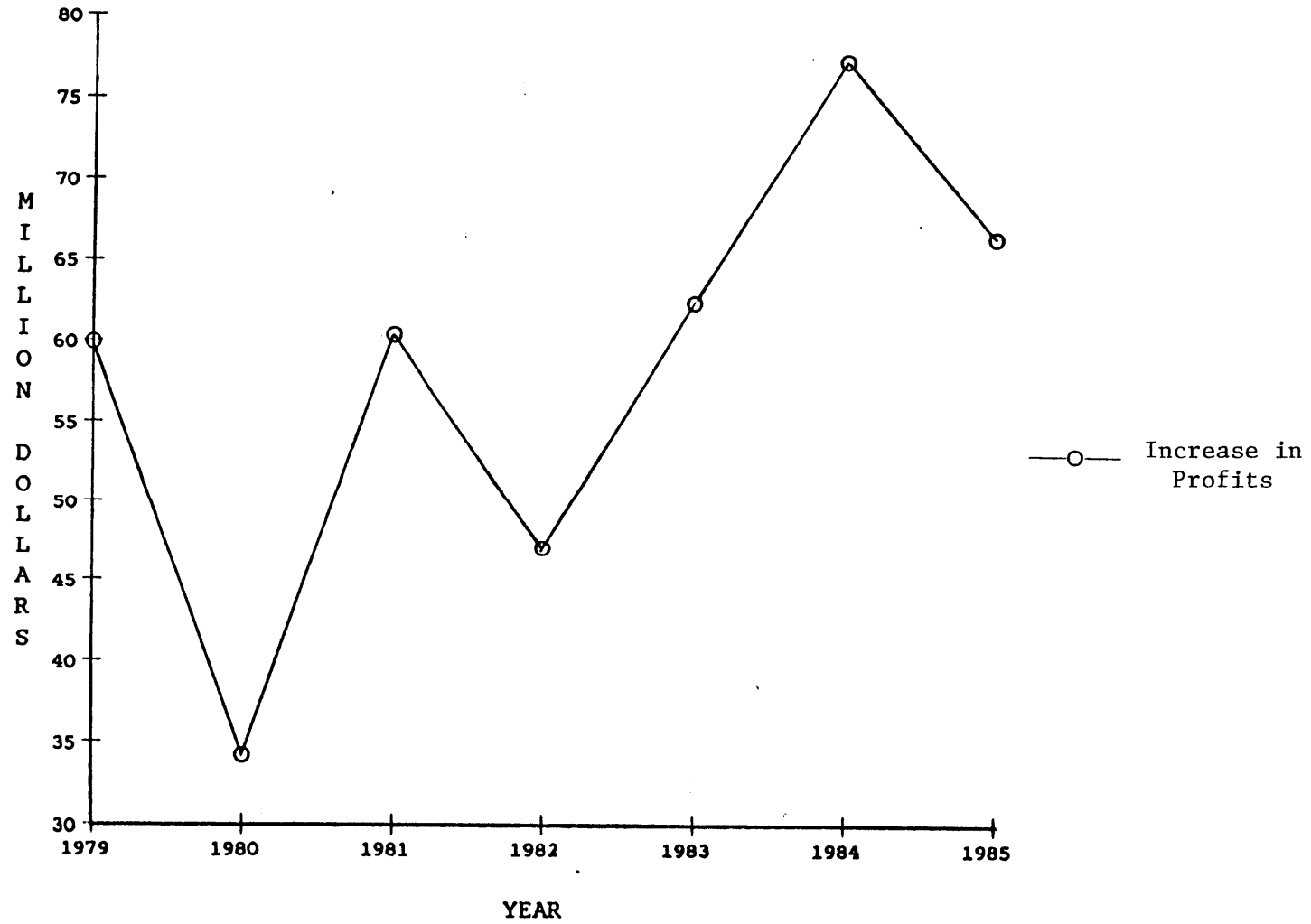


Table 4.18 Excess of Revenues Over Expenses , Shown as a Percent of Total Revenues (includes Non-Operating Revenues), 1979-85

	# hospitals			
1979	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
< -10 PCT	1	1	1.887	1.887
-10 PCT TO <-7.5	1	2	1.887	3.774
-3 PCT TO <-2 PC	1	3	1.887	5.660
-2 PCT TO <-1 PC	2	5	3.774	9.434
-1 PCT TO <0 PCT	3	8	5.660	15.074
0 PCT TO <1 PCT	10	18	18.868	33.962
1 PCT TO <2 PCT	8	26	15.094	49.057
2 PCT TO <3 PCT	8	34	15.094	64.151
3 PCT TO <4 PCT	7	41	13.208	77.359
4 PCT TO <5 PCT	6	47	11.321	88.679
5 PCT TO <7.5 PC	4	51	7.547	96.226
> 10 PCT	2	53	3.774	100.000
1980	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
< -10 PCT	1	1	1.887	1.887
-7.5 PCT TO <-5	2	3	3.774	5.660
-5 PCT TO <-4 PC	1	4	1.887	7.547
-4 PCT TO <-3 PC	1	5	1.887	9.434
-1 PCT TO <0 PCT	4	9	7.547	16.981
0 PCT TO <1 PCT	2	11	3.774	20.755
1 PCT TO <2 PCT	12	23	22.642	43.396
2 PCT TO <3 PCT	9	32	16.981	60.377
3 PCT TO <4 PCT	8	40	15.094	75.472
4 PCT TO <5 PCT	2	42	3.774	79.245
5 PCT TO <7.5 PC	8	50	15.094	94.340
7.5 PCT TO 10 PC	2	52	3.774	98.113
> 10 PCT	1	53	1.887	100.000
1981	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
-7.5 PCT TO <-5	2	2	3.774	3.774
-5 PCT TO <-4 PC	1	3	1.887	5.660
-4 PCT TO <-3 PC	1	4	1.887	7.547
-3 PCT TO <-2 PC	1	5	1.887	9.434
-2 PCT TO <-1 PC	3	8	5.660	15.094
-1 PCT TO <0 PCT	7	15	13.208	28.302
0 PCT TO <1 PCT	3	18	5.660	33.962
1 PCT TO <2 PCT	8	26	15.094	49.057
2 PCT TO <3 PCT	13	39	24.528	73.585
3 PCT TO <4 PCT	4	43	7.547	81.132
4 PCT TO <5 PCT	2	45	3.774	84.906
5 PCT TO <7.5 PC	6	51	11.321	96.226
7.5 PCT TO 10 PC	2	53	3.774	100.000

Table 18. Continued

	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
1982				
< -10 PCT	1	1	1.887	1.887
-10 PCT TO <-7.5	1	2	1.887	3.774
-4 PCT TO <-3 PC	1	3	1.887	5.660
-3 PCT TO <-2 PC	2	5	3.774	9.434
-2 PCT TO <-1 PC	1	6	1.887	11.321
-1 PCT TO <0 PCT	6	12	11.321	22.642
0 PCT TO <1 PCT	6	18	11.321	33.962
1 PCT TO <2 PCT	8	26	15.094	49.057
2 PCT TO <3 PCT	7	33	13.208	62.264
3 PCT TO <4 PCT	8	41	15.094	77.353
4 PCT TO <5 PCT	5	46	9.434	86.792
5 PCT TO <7.5 PC	5	51	9.434	96.226
7.5 PCT TO 10 PC	2	53	3.774	100.000
1983				
	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
-5 PCT TO <-4 PC	1	1	1.887	1.887
-4 PCT TO <-3 PC	2	3	3.774	5.660
-3 PCT TO <-2 PC	2	5	3.774	9.434
-2 PCT TO <-1 PC	3	8	5.660	15.094
-1 PCT TO <0 PCT	4	12	7.547	22.642
0 PCT TO <1 PCT	5	17	9.434	32.075
1 PCT TO <2 PCT	12	29	22.642	54.717
2 PCT TO <3 PCT	6	35	11.321	66.038
3 PCT TO <4 PCT	5	40	9.434	75.472
4 PCT TO <5 PCT	4	44	7.547	83.019
5 PCT TO <7.5 PC	5	49	9.434	92.453
7.5 PCT TO 10 PC	4	53	7.547	100.000
1984				
	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
-3 PCT TO <-2 PC	2	2	3.774	3.774
-2 PCT TO <-1 PC	1	3	1.887	5.660
-1 PCT TO <0 PCT	5	8	9.434	15.094
0 PCT TO <1 PCT	10	18	18.868	33.962
1 PCT TO <2 PCT	10	28	18.868	52.830
2 PCT TO <3 PCT	5	33	9.434	62.264
3 PCT TO <4 PCT	7	40	13.208	75.472
4 PCT TO <5 PCT	3	43	5.660	81.132
5 PCT TO <7.5 PC	6	49	11.321	92.453
7.5 PCT TO 10 PC	4	53	7.547	100.000
1985				
	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
-7.5 PCT TO <-5	1	1	1.887	1.887
-4 PCT TO <-3 PC	1	2	1.887	3.774
-3 PCT TO <-2 PC	1	3	1.887	5.660
-2 PCT TO <-1 PC	3	6	5.660	11.321
-1 PCT TO <0 PCT	3	9	5.660	16.981
0 PCT TO <1 PCT	8	17	15.094	32.075
1 PCT TO <2 PCT	9	26	16.981	49.057
2 PCT TO <3 PCT	7	33	13.208	62.264
3 PCT TO <4 PCT	2	35	3.774	66.038
4 PCT TO <5 PCT	6	41	11.321	77.358
5 PCT TO <7.5 PC	9	50	16.981	94.340
7.5 PCT TO 10 PC	1	51	1.887	96.226
> 10 PCT	2	53	3.774	100.000

is evident is that hospital financial situations improved under Chapter 372, despite industry grumblings. While in 1982 23% of all hospitals operated at losses, but by 1984 only 15% did so. In 1985, hospitals saw a minor set back in profits, with 17% of the industry operating at losses. However, the number of hospitals making both modest (0-3%) and moderate profits (3-7.5%) profits increased from every year between 1982-1985. Therefore, while total industry profits may not have been increasing, more hospitals were operating at profits. Also, fewer hospitals were losing as much money, with the majority of the losses between 1-2% of total revenues.

Because the industry was also vocal about having to dip into non-operating revenues to remain profitable, I also looked at profit margins excluding non-operating revenues. Non-operating revenues include gifts, endowment income, and investment income. These incomes have been protected by hospitals and thus far have not been allowed to be considered as income under any (this or previous) payment system.[11] The results are shown below in Table 4.19. They show that in the first year after the law's implementation,

11. Because nonoperating revenues were not reported separately in the RSC 401 Cost Report, these figures are not available for 1979-80.

Figure 4.19 Excess of Revenues Over Expenses, Shown as a Percent of Total Revenues, Excluding Non-Operating Revenues 1981-85

1981	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
-10 PCT TO <-7.5	8	2	3.774	3.774
-7.5 PCT TO <-5	1	3	1.887	5.660
-5 PCT TO <-4 PC	6	9	11.321	16.981
-4 PCT TO <-3 PC	1	10	1.887	18.868
-3 PCT TO <-2 PC	3	13	5.660	24.528
-2 PCT TO <-1 PC	6	19	11.321	35.849
-1 PCT TO <0 PCT	9	28	16.981	52.830
0 PCT TO <1 PCT	11	39	20.755	73.585
1 PCT TO <2 PCT	9	48	16.981	90.566
2 PCT TO <3 PCT	2	50	3.774	94.340
3 PCT TO <4 PCT	1	51	1.887	96.226
5 PCT TO <7.5 PC	2	53	3.774	100.000

1982	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
< -10 PCT	2	2	3.774	3.774
-5 PCT TO <-4 PC	3	5	5.660	9.434
-4 PCT TO <-3 PC	3	8	5.660	15.094
-3 PCT TO <-2 PC	6	14	11.321	26.415
-2 PCT TO <-1 PC	3	17	5.660	32.075
-1 PCT TO <0 PCT	10	27	18.868	50.943
0 PCT TO <1 PCT	9	36	16.981	67.925
1 PCT TO <2 PCT	10	46	18.868	86.792
2 PCT TO <3 PCT	4	50	7.547	94.340
3 PCT TO <4 PCT	1	51	1.887	96.226
4 PCT TO <5 PCT	1	52	1.887	98.113
5 PCT TO <7.5 PC	1	53	1.887	100.000

1983	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
-10 PCT TO <-7.5	2	2	3.774	3.774
-7.5 PCT TO <-5	1	3	1.887	5.660
-4 PCT TO <-3 PC	3	6	5.660	11.321
-3 PCT TO <-2 PC	4	10	7.547	18.868
-2 PCT TO <-1 PC	5	15	9.434	28.302
-1 PCT TO <0 PCT	6	21	11.321	39.623
0 PCT TO <1 PCT	13	34	24.528	64.151
1 PCT TO <2 PCT	11	45	20.755	84.906
2 PCT TO <3 PCT	3	48	5.660	90.566
3 PCT TO <4 PCT	1	49	1.887	92.453
4 PCT TO <5 PCT	1	50	1.887	94.340
5 PCT TO <7.5 PC	2	52	3.774	98.113
7.5 PCT TO 10 PC	1	53	1.887	100.000

1984	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
< -10 PCT	1	1	1.887	1.887
-7.5 PCT TO <-5	1	2	1.887	3.774
-5 PCT TO <-4 PC	1	3	1.887	5.660
-3 PCT TO <-2 PC	3	6	5.660	11.321
-2 PCT TO <-1 PC	7	13	13.208	24.528
-1 PCT TO <0 PCT	8	21	15.094	39.623
0 PCT TO <1 PCT	9	30	16.981	56.604
1 PCT TO <2 PCT	9	39	16.981	73.565
2 PCT TO <3 PCT	4	43	7.547	81.132
3 PCT TO <4 PCT	3	46	5.660	86.792
4 PCT TO <5 PCT	3	49	5.660	92.453
5 PCT TO <7.5 PC	2	51	3.774	96.226
7.5 PCT TO 10 PC	2	53	3.774	100.000

1985	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
-7.5 PCT TO <-5	3	3	5.660	5.660
-4 PCT TO <-3 PC	3	6	5.660	11.321
-3 PCT TO <-2 PC	1	7	1.887	13.208
-2 PCT TO <-1 PC	3	10	5.660	18.868
-1 PCT TO <0 PCT	7	17	13.208	32.075
0 PCT TO <1 PCT	12	29	22.642	54.717
1 PCT TO <2 PCT	11	40	20.755	75.472
2 PCT TO <3 PCT	4	44	7.547	83.019
3 PCT TO <4 PCT	4	48	7.547	90.566
4 PCT TO <5 PCT	2	50	3.774	94.340
7.5 PCT TO 10 PC	2	52	3.774	98.113
> 10 PCT	1	53	1.887	100.000

hospitals significantly improved their operating margins, with hospitals operating at a loss decreasing from 51% to 40% and the losses getting successively smaller in each year. By 1985, this percent had decreased to 32%, although for this year a larger number of hospitals had losses equal to a moderate percentage of their total revenues (hospitals having greater than 3.5 of their total revenues lost increasing from 5.6 % of the hospitals in 1984 to 11.32% in 1985, but no hospital losing more than 7.5% of total revenues.) Thus, I conclude that for the majority of the hospitals financial conditions improved under Chapter 372, with fewer hospitals losing having smaller losses, and more hospitals having moderate profits. increasing. Thus, even excluding non-operating income, the industry appears to have improved their financial standings.

4.4 Patterns of Hospital Behavior

In evaluating efforts to contain hospital costs, it is important to examine patterns of responses to the regulatory policy. Specifically, we want to know if hospitals which contained costs (had low rates of increases) responded to the incentives (e.g. had decreases in ALOS or reduced ancillary costs per day) and whether profitable hospitals achieved their financial position by responding to the

incentives or by pursuing other strategies. Furthermore, we want to know whether certain types of hospitals had different responses to the law. Such refinements in the analyses of the law's impact would provide more information both on hospital's responses to regulation and on the effects and equity of the law.

Numerous correlations were done on the changes in costs, profits, and profits as a percent of total revenues. (See Appendix E for statistical results.) The analyses reveal that numerous hypothesized behaviors were not substantiated. These include:

- hospitals with lower costs were not more profitable
- hospitals in good financial standing in 1982 (prior to the law) were not necessarily in good financial shape in subsequent years
- hospitals with lower increases in total costs did not have lower costs of bad debt and free care
- profitable hospitals did not have lower bad debt and free care costs
- hospitals with the largest revenues (the largest hospitals) were not the most profitable
- hospitals with large changes in profits did not do so by having similar large changes in ancillary costs, investing in capital or equipment, shifting to more

private pay mix, decreasing the proportion of inpatient costs , or decreasing ALOS

The correlations which proved to be significant were:

- Changes in costs were inversely related to ancillary costs per day and per discharge, confirming previous results that, though delayed, hospitals responded to the law.
- Hospitals which had high changes in costs also had high capital and equipment costs.
- Hospitals with small increases in total costs also significantly reduced their length of stay.
- Hospitals with high profit margins in year n were also profitable in the previous year.

These results reveal several important points about hospital behavior under regulated payments. First, hospitals continue to expand capacity both in terms of equipment and capital. Whether these investments are due to internal pressures on administrators to attract and maintain a qualified and ample physician base or the fact that these costs are ignored by the payment system can not be discerned from the data (probably both.) Hospitals do not appear concerned that approved operating expenses associated with new capital investments may be inadequate to cover actual

operating expenses. This attitude may reflect the dominant position hospitals may be in with respect to the regulators (in this case, Blue Cross initially and then the Rate Setting Commission) in presenting evidence to gain cost approvals for exceptions. If hospital administrators have confidence that they can justify cost increases associated with projects and equipment purchases, then their behavior is basically unrestrained. This situation typifies the regulator/regulated relationship described in political economic and capture theories of regulation that favor the industry in decision-making due to the imbalance of information.

Second, shifts in behavior that may reduce costs and respond to the incentives do not necessarily result in profits. None of the following responses to the law were significantly correlated with profits: reduced ancillary costs, reduced inpatient component of costs, average length of stay, and ancillary costs per day or per discharge. Furthermore, capital and equipment costs are not correlated with profitability. These findings indicate that hospitals which treat a more intensive patient population or upgrade their capital do not do so to improve their bottom lines, at least not in the short run. They may be satisfying some other objective--such as increasing prestige, teaching residents and interns, or pursuing a long run strategy of

satisfying physicians to improve future profits-- but present profit maximization is not an adequate model of these hospital behaviors.

Third, in the face of budget constraints hospitals did not cut bad debt and free care (which was a passthrough), education, or (salaries and wages) in order to better themselves financially. Hospitals were clearly pursuing some quality objective which maximizes community support and prestige, not profits. Although previous analyses revealed profits had increased and the health of the industry was generally improved, hospitals do not pursue a strictly profit maximizing behavior. Rather, their behavior reflects cash flow or utility maximization.[1] These findings suggest that hospitals temper their reactions to regulations with their own internal pressures, and specifically, physician demands. Their behavior is motivated by objectives other than profits.

The results of the correlations were disappointing. I expected to see that profitable hospitals were those which responded most positively to the incentives. The most likely explanation for this is the high variability in profit

1. See Karen Davis, "Economic Theories of Behavior in Non-Profit, Private Hospitals," Economics and Business Bulletin (Washington, D.C., Brookings Institute Reprint No. 239, Winter 1972.

margins, both from hospital to hospital and from year to year for the same hospital. The results may be clouded by hospitals with "varied" financial performance after the law was enacted. Typifying behavior of these hospitals would be difficult given the variability of their profits, and may be unrelated to their responses to the law. Examining "good", "average" and "poor" performers might make trends more visible.

The second part of the analyses examined hospital rates of change by category to see if any patterns of responses could be determined. Specifically, did larger or teaching hospitals have an easier or harder time than small or non-teaching hospitals in responding to the incentives? And if so, which incentives prompted different responses? Answers to these questions would provide insights into competing theories about hospital behavior. On the one hand, large hospitals (and teaching hospitals) have and use more resources per patient day. If some of this resource utilization is discretionary, they would also have more ability to decrease costs per day. They may also have higher overhead costs which increase their ability to cut these costs in response to the law. On the other hand, because they are larger, managing their physician staffs will be more difficult and could take longer to see responses to the law. Under this scenario, smaller

hospitals could have the advantage in making the best use of the incentives presented by the law. Therefore, hospitals were separated into (1) teaching and non-teaching and (2) small, medium, large, and very large hospitals (0-150, 150-300, 300-450, and 450+ beds, respectively.) Differences in components of costs and in rates of change are analyzed, using T tests to measure the significance of any differences in rates or ratios.

4.4.1 Responses of Hospitals of Different Sizes

The results of the studies show that the different sized hospitals had different abilities to respond to the incentives of the law. In general, the smaller hospitals responded better than larger hospitals to the incentives to shift ancillary utilization to outpatient, to increase outpatient volume, and decrease the proportion of inpatient costs to total costs. The larger hospitals had the advantage in decreasing total ancillary costs, overhead costs and LOS. T tests were performed comparing small and medium hospitals, medium and large hospitals, large and very large hospitals, combining small with medium hospitals and large with very large hospitals, and teaching with community hospitals. Each set of comparisons are discussed below.

Small Compared with Medium Hospitals

Although it took over a year for some of the differences to be observable, small hospitals responded more favorably than medium hospitals to the incentives to decrease admissions, increase outpatient ancillary costs, and decrease the proportion of inpatient costs to total costs.[2] Specifically:

- In 1983-84 small hospitals decreased their admissions by four percent, while medium hospitals decreased a meager .08 percent.
- The outpatient ancillary services as a proportion of total ancillaries between 1984-85 increased 4.6% for small hospitals versus 1.7% for medium hospitals.
- Total Ancillary costs decreased 1983-84 (.3%) for small hospitals, whereas in medium hospitals they increased (1.06%).

However, the smaller hospitals did not seem to be able to decrease total costs any better so that their costs (total and ancillary) per day and per discharge were significantly higher. In fact, total costs excluding capital increased six percent for small hospitals in

2. In all fairness to the medium hospitals, it should be noted that small hospitals did have lower inpatient costs as a percent of total costs and lower inpatient ancillary costs as a percent of total ancillary costs prior to the law's implementation.

1982-83, whereas the medium hospitals increased only 1.2%. In addition, the medium hospitals decreased their overhead, salaries and wages, and routine costs more than small hospitals.

Medium Compared with Large Hospitals

These two categories of hospitals showed similar results to the small/medium comparison. Medium hospitals decreased utilization more but were no better at reducing costs, which resulted in higher costs per day and per discharge, for both total and ancillary costs. Again, ancillary usage appeared to have been better shifted by the medium hospitals, but the large hospitals actually reduced ancillary costs. Interestingly, the large hospitals consistently had significantly higher ancillary costs per day and per discharge. With these higher per unit costs, one can understand their effective strategy to decrease ancillary costs. This cost containment strategy appears to have paid off because the gap between the two categories continually grew smaller and less significant so that by 1985, ancillary costs per day, though higher for the larger hospitals, were no longer significantly different.

Large Compared with Very Large Hospitals

There were fewer differences between these two categories of hospitals than for the other categories, but the differences confirmed previous patterns identified.

Specifically, very large hospitals did not drop their admissions (in fact theirs increased a full 8.5% between 1984-85) but they were more successful at bringing down their lengths of stay (decreases of 8.2% versus 1.7% for large hospitals.) Very large hospitals also had a smaller proportion of their total costs comprised of outpatient ancillary costs and a larger proportion of inpatient costs. Differences in inpatient ancillaries per day were significant for 1983-84, with very large hospitals experiencing 7 percent increases, while large hospitals saw a more modest increase of just under two percent. Another significant finding was that very large hospitals had large increases in routine inpatient costs between 1984-85 (9.2% versus a drop of 2.5% for large hospitals.) In addition, very large hospitals had a more difficult time controlling the rates of increase in salaries and wages, with very large hospitals having increases in salaries and wages of over three percent per year, compared to decreases of 1.4% and a modest increase of 0.7% for the years 1983-84 and 1984-85, respectively. There were no differences in changes in total costs, overhead, capital, or ancillary costs per day or per discharge.

In conclusion, hospitals appear to have adopted strategies to suit their abilities/constraints. Smaller

hospitals were better able to shift utilization from the inpatient to outpatient, both for ancillary costs as well as for routine costs. Because they see a less intensive case mix, their ability to shift costs to the outpatient sector is greater than for larger hospitals. However, at actually containing costs, the smaller hospitals always fared worse than their larger counterparts. At each size comparison, the smaller hospitals shifted utilization, where the larger hospital was able to reduce costs of salaries and wages, ancillary services, overhead, and routine services (room and board costs). At the very largest hospitals, their ability to cut routine and labor costs is limited due to the large inpatient component to their services, in part a reflection of their more intensive case mix. Their distinctive strategy was to reduce length of stay.

Interestingly, though different strategies were used, no category was better able than others to reduce total costs. Capital costs for the larger hospitals resulted in some difference in total costs between small/medium hospitals and large/very large hospitals, but these differences disappeared when comparisons were made excluding capital from total costs. The large differences between different sized hospitals for ancillary costs per day and per discharge were narrowing such that by the last year many of the differences were no longer significant. These

results point to the increasing intensification of services delivered at all hospitals due to the shifts to outpatient services and the decline in days and admissions.

4.4.2 Teaching and Community Hospitals

Table 4.20 compares length of stay, costs per day, and costs per discharge by hospital category. Notice, for example, that teaching hospitals have been more expensive per day and per discharge than non-teaching hospitals for the entire period. Their length of stay has converged with non-teaching hospitals, such that beginning in 1982 and increasingly true in later years, the teaching hospital ALOS was higher but not statistically significant.

Table 4.20 Differences in ALOS, Costs Per Day, and Costs Per Discharge for Teaching (T) and Non-Teaching (NT) Hospitals

	ALOS T	ALOS NT	\$/Day T	\$/Day NT
1979	8.89	8.01	475.08	339.90
1980	9.05	8.16	493.46	339.85
1981	9.19	8.21	563.37	361.02
1982	9.09	8.30	597.05	383.37
1983	8.91	8.05	616.00	403.92
1984	8.61	7.94	637.61	425.79
1985	8.16	7.79	684.73	463.51

	\$/Dischg T	\$/Dischg NT
1979	4351.93	2716.71
1980	4568.56	2763.28
1981	5276.50	2963.04
1982	5536.46	3182.54
1983	5585.39	3252.65
1984	5568.43	3375.26
1985	5681.13	3602.35

Several interesting results came out of these studies.

1. There was no difference in the rates of change in costs or costs without capital between the two groups. Costs per day and per discharge did differ due to the community hospitals having larger decreases in days and discharges.
2. Overhead costs decreased faster in teaching hospitals than in community hospitals.
3. Major movable equipment and capital costs increased more in teaching hospitals than in community hospitals.
4. Changes in average length of stay, costs of bad debt and free care, and salaries and wages did not differ for these two groups.
5. It took a year to see changes in ancillary costs between these categories of hospitals but by 1983-84, inpatient ancillary costs were decreasing faster in community hospitals than in teaching hospitals. Likewise, outpatient ancillary costs increased as a proportion of total ancillary costs and total costs faster in non-teaching hospitals than in teaching

hospitals. Ancillary costs per day and per discharge increased faster at non-teaching hospitals, due to their decreases in total days and admissions. Total ancillary costs as a proportion to total costs for any year did not differ for the two categories.

6. Proportion of inpatient and outpatient costs did not differ for teaching and community hospitals.

These results show that community hospitals decreased inpatient volume more than teaching hospitals. This result is not surprising given that teaching hospitals presumably have larger demands on their inpatient services and more complex case mix. In addition, any changes in physician practice patterns would be harder to implement and would take longer to be observed. Teaching hospitals also have more equipment needs than community hospitals and have more overhead to trim, hence these results.

4.4.3 Conclusion

Comparing hospitals of different sizes and with and without teaching affiliation has revealed an important lesson about the design of the law. By providing a variety of incentives, this law incorporates a broad approach to cost containment that allows hospitals to adopt a range of strategies to implement effective cost savings. Small

hospitals have chosen to focus on shifting utilization, in part out of necessity. They have fewer opportunities to shave costs without beginning to cutback on service provision. By shifting utilization, they have managed to match the rates of increase in costs in larger hospitals with more diverse options. Larger hospitals, with with more overhead, salaries, and routine costs have elected to cut these costs to achieve their savings. With more complex case mixes, these hospitals have fewer options to shift utilization. In the long run, however, the small hospitals will face increasing difficulty in matching larger hospitals ability to find areas to cut costs. Competition from alternative providers will pressure hospitals to provide outpatient services, while larger hospitals will siphon off the more complex cases leaving the smaller institutions with few avenues for equal financial health as the larger hospitals. Without protection for the small, geographically isolated hospitals, the national trends alone will threaten their profitability.

4.5 Summary

The analyses in this chapter have indicated the initial results of the incentives and unintended effects of the

law. While it is premature to draw firm conclusions based only on three years of post-C.372 data, several trends are apparent and worth highlighting. They also suggest which types of incentives tend to work and which ones don't, and suggest reasons why. In addition, results indicating certain lags in responses may suggest the political hierarchy operating within hospitals that make certain changes in behavior slow. First I will summarize the main findings.

The law appears to have been effective at reducing the rate of increase in costs when compared to rates of change exhibited prior to the law's implementation. Pre-post comparisons indicated that there was a significant difference in the rates of change in total costs, total patient days, and costs per discharge. Discharges, as a proxy for patient stays, did not begin to decline until 1984. These volume experiences combined to result in significant declines in average length of stay. Because total days declined more quickly than total costs, costs per day actually rose during the post-C.372 period when compared with the costs per day prior to the law. These results were even more significant when capital, which was uncontrolled by the law, was removed from the expenses. Examination of the timing of the declines in total costs indicated that annual rate of change were significantly different in the

first year after the law was enacted, again suggesting that the law was at least in part responsible for the declines. As might be anticipated, categories of costs that were unregulated (especially, major moveable equipment, interest and depreciation on buildings, and fixed equipment) continued to have very high rates of increase in costs.

While a simple pre-post MA comparison yielded significant findings to indicate that the law was successful at controlling costs, the results overstate the effectiveness of the law. This is because the comparison includes no controls for trends existing in the rest of the country that may just as adequately explain the results, most notably declining utilization. Therefore, comparisons with regional data were performed to put the MA experience into a broader context. The Northeast is an appropriate "control" group because it exhibits similar utilization and cost experience and includes several regulatory programs. Without C.372, MA undoubtedly would have continued with its preexisting regulatory programs, and thus the highly regulatory environment of the control group is well suited to a comparison with MA.

When compared with regional data, the law continued to look effective. Total costs rose more slowly than those in the peer group. Utilization measures, including length of stay and discharges, were not significantly different,

indicating the similarity of MA to the region in its use of services. Patient days declined more rapidly in MA, at statistically significant rates. When combined with significant differences in total costs, the volume measures resulted in significantly different costs per day--that is, MA costs per day rose less quickly than those of the Northeast. Given the greater declines in total costs, patient days, and length of stay for MA than a relevant "control" group, these results support the hypothesis that the law was effective in bringing down the rates of increase in hospital costs in MA.

Since many of the trends affecting MA and the Northeast are in fact national trends, comparisons with national data were also done. These results indicated that there were no statistically significant differences between the MA program and the national trends in declining utilization and costs. Insignificant differences were found for increases in total costs, costs per day or per discharge, or total patient days. Discharges declined more quickly in the rest of the country than in MA.

Though clearly not an endorsement for the effectiveness of C.372, it should be noted that this comparison tends to underestimate the impact of the law for two reasons. First, the national "control" includes a variety of rate setting programs, including the PPS used by Medicare. That MA did

not out-perform the declines in the national rates of increase only tells us that MA was no more effective than the existing patchwork of regulatory programs. Second, national rates of increase historically have been lower for the US than for MA. That MA could not keep pace with these national rates of change may not be a statement about the effectiveness of the law, but rather a statement about the difficulty a high cost/high use state has in bringing its rates of change within the national norms. Moreover, in several states where the shift to PPS was the first introduction of hospital rate regulation, rates of increase would be more likely to decline than in a long regulated state like MA. This is because regulated states have had tighter controls on increases for a longer period of time and have already achieved some of the savings that the other previously unregulated states will only now be beginning to realize.

As already noted, the reduction in costs were in part realized through the reduction in inpatient utilization. Of inpatient costs, the routine component made up an increasingly smaller portion. Costs per day appear not to have decreased, in large part because declines in utilization outpaced the decreases in costs. Costs per discharge, however, did show significant declines.

The law did not have dramatic effects on outpatient

volume. Outpatient services had already undergone substantial expansions well before the law was in place, and therefore increases in volume can not be attributed to this law. On the outpatient ancillary side, however, the law was effective in shifting inpatient ancillary services to outpatient, though the shift took a year to be observable. Inpatient ancillary costs decreased 4.5% between the pre and post periods, with total ancillary costs decreasing in the first year of the law's implementation. Hospitals appeared to have decreased utilization in the first year and then shifted utilization in the subsequent years. (This result needs to be case mix adjusted before it is conclusive.)

How were these savings achieved? Decreases in utilization accounted for the largest share of the declining rates of increase in costs. In addition, hospitals decreased routine costs (room and board, or the "hotel" component), overhead costs, and, to a lesser extent, ancillary costs. Hospitals with the lowest rates of increase in costs also had the lowest rates of change in ancillary costs, length of stay, and capital costs. Different sized hospitals had different strategies for achieving cost reductions, with the smaller hospitals focusing on shifting utilization to outpatient, while the larger hospitals actually reducing costs in ancillary, overhead, and routine areas. The very large hospitals

concentrated on reducing length of stay and ancillary costs. Compared with non-teaching hospitals, teaching hospitals did not cut back on admissions and total days. This may reflect an increasing concentration of case mix at teaching hospitals. Teaching hospitals had much higher capital costs, bringing their otherwise lower rates of increase up to the industry average. If they had invested less heavily in capital, their rates of decline would have been lower than those of non-teaching hospitals. Of note was the lack of effect on salaries and wages, education expenses, and bad debt and free care.

The cost reductions achieved in the post-C.372 period did not adversely affect hospitals' financial health. In fact, at least for the first two years after implementation, the health of the industry improved, both considering and excluding non-operating revenues. The last year's decline in profit levels remains to be explained sufficiently. Hospitals improved their bottom lines basically by increasing non-patient service revenue. Although still to be further refined, the correlations for the industry as a whole yielded some interesting results. Changes in profits were not associated with size, changes in ancillary costs, capital expenditures, private pay mix, proportion of inpatient services, or length of stay. These findings contradict several myths about hospital responses to the

law, including: hospitals would decrease public payer mix, hospitals which responded to the incentives would be rewarded in the form of higher profits, and hospitals would remain profitable at the expense of labor and education costs. In addition, hospitals appear to have responded to the guaranteed payment for uncompensated care by increasing its provision.

The findings reveal some interesting behavior on the part of hospitals. Profits clearly do not motivate hospital choices about expenses and cost savings. That costs continue to increase for education and salaries indicate that these costs are important to the hospital, either because of community or staff support, prestige, or, in the case of labor, pre-existing contracts. Profit maximization or cost minimization are not accurate models of hospital behavior. The areas of choice in cost containment reflect the political power structure within hospitals. Internal pressures on hospital administration limit the areas that can easily be controlled; thus, areas in which there is the least pressure (such as routine and overhead costs) are the first targets for control. After a period of delay, hospitals did eventually shift utilization to the outpatient department. Such lags may result from the time required to educate physicians and for administrators to fully understand preferred behavior to take advantage of the law.

In addition, hospitals were seen to vary in their responses to these incentives. Larger hospitals do have more options in terms of finding areas to contain costs. In addition, if cost savings can be achieved without imposing changes on physician behavior, from an administrators viewpoint, this is a preferable source of action. However, larger hospitals, with more complex case mix, may be less able to shift costs to the outpatient departments. Or, it may reflect the slower response time larger facilities need to coordinate actions of the administration, physician staff, and if new services are involved, the board.

Areas selected for cost containment can also be seen in terms of the degree to which the action requires changes in physician behavior that threaten his/her style of medicine. At one end of the spectrum would be those areas of cost containment that require little or no physician involvement--for example, overhead and routine costs. At the other end are changes which require substantial physician education and changes in his/her practices. Use of ancillary services or day surgery are examples where physicians are key to containing costs in these areas. In the middle would be cost containment strategies that require a combination of administrative and medical decisions--denying the marginal admission and removing those extra days that were essentially administrative. By

improving the linkage between the medical and administrative branches of the hospital, the administration can influence such "medical" decisions about admission and length of stay. Clearly, the areas of most difficulty in containing costs would be those which involve strictly medical decisions. Here, an administrator must deal delicately with medical staffs to educate them, hoping to influence their behavior, but not dictate their practices or reduce the quality of care delivered.

Two areas of high cost increases point to future areas of regulatory policy if costs are to continue to be controlled-- specifically the control of capital (including equipment), and costs beyond control (the exceptions.) That these areas remain unregulated underline their political importance. Capital and equipment decisions are at the heart of hospitals' ability to maintain market share. Hence their reluctance to control these expenditures. The cost of this political decision is high, however. Until insurance premium increases are denied, and the payers turn to pressuring hospitals and the state, the necessary political coalition will not exist to control this area of costs. In addition, no prospective payment system has avoided a safety valve provision that nominally deals with legitimate differences between hospitals and exceptional cases--be it the negotiated rates (albeit formula based) of Maryland, the

outlier status of DRG's, or the historical cost bases of the New York per diems. Differences between hospitals do exist and should be recognized by the payment system. Yet, the doubling of the costs of the exceptions in two years suggests the loophole nature of this category of adjustments.

Finally, the data on the components of the hospital payments suggest that for a nominally prospective system, C.372 is essentially a retrospective system with a prospective component. Adjustments for changes in inflation, volume, capital, and exceptions are all retrospectively determined at the close of the fiscal year, leaving the hospital at little risk and considerable reward. Given the ability of the hospitals to contain certain costs, like volume and capital, the assumption that these costs are uncontrollable results in overly generous payments. Hence the growth in the profit margins under this regulatory program. It would appear that the industry benefits from cost reduction, are at virtually no risk for cost increases, and that the payers do not share in the rewards of reduced costs. Such is the nature of negotiated solutions.

The next chapter discusses the amendments to C.372 since it was enacted in 1982. The description of these elements does more than provide more updated information on

the payment system. By tracing the development of the various amendments, we will see that the law continues to be dictated by industry interests. Numerous provisions to strengthen the payment system were either passed over or sufficiently weakened such that the system continues to evade serious cost containment efforts.

Chapter 5

The Policy Making Process: Amendments to Chapter 372

Chapter 372 has undergone numerous changes since it was first adopted in October 1982. These "technical amendments" can be divided into three broad categories, with intended beneficiaries. First, there are changes which attempt to impose tighter controls over the allowable increases in costs. Such provisions would limit the generous nature of the payment system and reduce payer (and, in theory eventually consumer) liabilities. Second, amendments seek to reduce the inequities between hospitals. These provisions have two intended purposes: to improve access to hospital care for Medicaid and uninsured patients, and to eliminate unintended penalties resulting from uniform policies. The third category is targeted at reducing the "inequities" between payers. While these amendments do increase the equity between payers, they are really efforts by the public and the private sectors-- and within the private sector, between Blue Cross and the charge payers-- to limit their own payouts and minimize the others' ability to cost shift.

This chapter analyses the evolution of the law since its formal implementation to learn about the political tensions that exist in making policy, the winners and losers in these struggles, and the implications these changes have for public policy. Combined with the results of the law, we will see that the hospital industry has been very successful at securing provisions that insulated it from the financial impacts of declining utilization, enabled them to benefit from resource shifts they were already making, exempted their treasured capital expenditures (their lifeline to revenue generation) from regulatory purview, and maintained a broad category of exceptions in case the increases in costs would not be covered elsewhere.

Tracing the evolution of the law assists us in understanding the dynamics of policy making--both its rationality and its highly political nature. On the rational side, we have amendments which appropriately make corrections to unintended consequences or omissions, or attempt to tighten up the rather generous provisions. Conversely, many changes made reveal the highly political nature of policy making. There has been a slight realignment of interest groups, with the regulator frequently teaming up with the business community to gain its support, and the hospitals and Blue Cross have increasingly parted ways as their interests diverge. As a

result of the shifts in the relative powers, several provisions previously unacceptable, were adopted in 1982-85. Changes made and omitted reflected the changing political realities, both in terms of the agenda setting and the solutions chosen for the selected problems. Unfortunately for public policy, we will see that despite some tightening of the provisions, important areas of hospital costs remain virtually uncontrolled, revealing the limits of policy reforms and the politically sensitive and key economic areas of cost containment.

This chapter is organized as follow. After an overview of how amendments to the law are made, amendments in each of the general categories of objectives are discussed. The intent, the issues, and the final resolution are outlined to make assessments about the effects of the provisions. Conclusions about the political and economic realities of policy reforms are drawn, highlighting the difficulty of enacting cost containment policies.

5.1 Making Changes to the Law

There are two basic ways to change the policies incorporated into Chapter 372--legislatively and by making amendments to the Blue Cross contract. Remember that this

payment system is rooted in a contract Blue Cross has with the hospitals specifying its principles of payment. While the law could override these definitions, to date this has not been done.[1] The lack of legislated exclusions reflects the relative consensus about the payment methodology and the political feasibility of amendments. All amendments have focused on areas the Blue Cross contract does not address, since it is a contract between one payer and the hospitals. These include: the eligibility of other payers for discounts similar to that of Blue Cross, the differential between Blue Cross and the charge payers, the establishment of a pool for payments for bad debt and free care, and modifications for Medicaid's method of payment.

The legislature has been relatively uninvolved in the design of this law, both its original form and its amendments. This area of policy is highly technical with neither legislators nor their staffs having a sufficient grasp of the complex financial and accounting arrangements required to become effective policy makers. Because of the necessary technical expertise and the political power of the industry, the legislature has repeatedly deferred to the

1. Exceptions include certain costs that government payers refuse to pay for, including price level depreciation and bad debt, and other categories where the government uses its own definitions of costs, including malpractice, renal dialysis, and accruals.

coalition of interested parties which has become the decision-making body for the law. This coalition, known as the Health Care Coalition, includes Blue Cross, the Life Insurance Association of America (representing the commercial insurers), Medicaid, the Executive Office of Human Services (including the Office of Health Policy), the Massachusetts Hospital Association, the Massachusetts Medical Society, the Massachusetts Business Roundtable, and Local 297 (the major hospital workers' union). Essentially, this private coalition has become the debating arena for conflicting interests, hammering out compromises and presenting these to the Joint Legislative Committee on Health Care as a package ready for adoption. These proposed amendments do receive a public hearing, at which any views, both institutional and individual, may be heard. By this time, parties to the coalition have vested interests in the package as proposed, so dissenting views from within the coalition are rarely heard.

Legislative amendments have also been constrained by the threat posed by the Health Care Financing Administration.[2] would be required if substantial changes

2. The Massachusetts Hospital Association held a waiver with HCFA from the traditional payment systems used by Medicare and Medicaid in order to put these sources of revenues onto C.372 payment system.

were made to the law. The distain HCFA had for waivers in general and specifically non-DRG based systems made state policy-makers wary of requesting amendments to the original waiver. Similarly, open debate of the law could split apart factions within the hospital association, which are barely being held together. Many of its members were in favor of joining the national Medicare payment system and were not opposed to a collapse of the law. [3]

Clearly, if the provisions of the law adversely affected the financial condition of a significant number of the hospitals or the liabilities of the payers, one could expect to find amendments filed with the legislature. The proposed amendments would have to receive Coalition endorsement and could not undermine the original intent of the law. Previous proposals designed to circumvent the law were soundly defeated at the Committee level and did not

3. David Kinzer, President of the Massachusetts Hospital Association, frankly acknowledged the lack of unanimous hospital support for Chapter 372 and a preference for a DRG system by a number of hospitals. See David Kinzer, Testimony at the Public Hearing of the Hospital Agreement 30, October 2, 1984, Massachusetts Rate Setting Commission, Boston MA.

4. See House Bills 5517 and 4017, and Senate Bill 576 of 1983 for examples of special interest legislation that did not get adopted. These bills proposed (1) circumvention by Lawrence General Hospital, (2) exempting hospitals under 100 beds from the law, (3) exemption of efficient hospitals from the productivity factors incorporated into the law, respectively.

even reach the floor.[4] The Health Care Coalition has sponsored three sets of legislative amendments: Chapter 389 of the Acts of 1983, Chapter 183 of the Acts of 1984, Chapter 332 of the Acts of 1985, and Chapter 547 of the Acts of 1986. The provisions of these amendments are discussed in the next sections.

Until the hospital agreement was up for renegotiation, it underwent only one amendment--and that one was specified in the original contract.[5] This remarkable stability is testimony to the political resources used during contract negotiations. Once an agreement is signed, it is sealed for three years. Refinements are not even considered until the development of the negotiating agenda for the next contract.

Prior to the negotiations for HA-30, the Rate Setting Commission used a public process for all interested parties to draft guidelines to be forwarded to the negotiating parties. The group included Medicaid, commercial insurers, Massachusetts Business Roundtable, Massachusetts Taxpayers Foundation, Consumer Health Advocates, Massachusetts Nurses Association, Massachusetts Medical Society, Office of Health Policy, Health Planning Council of Greater Boston, Professional Review Organization of Central Massachusetts,

5. The revision of the inflation methodology.

Senate Post Audit and Oversight Committee, and Commission staff. Blue Cross and MHA observed these meetings, but did not actively participate. As with the previous contract, the Commission developed guidelines to give the parties a clear sense of the changes it would be looking for in the successor agreement. In using a public process to develop the guidelines, the Commission was both providing an avenue for outside input and looking for political allies.

There were numerous amendments made to the contract, and hence to the law, when Blue Cross renegotiated its contract at its regular three year renewal date. The amendments modified the calculation of allowable costs, tightening up some areas, while loosening others. As will be discussed in the conclusion of this chapter, this legislated structure, with the law embodying the terms of the Blue Cross contract, is a peculiar way to make public policy. Efficiency aside, the structure results in a process which is entirely closed to the public, other affected payers, and the regulators in charge of administering Chapter 372. For those favoring "private solutions", this privatization of public policy is a welcome change. For others who fear the inflationary effects of regulation by the industry itself, this arrangement may subvert the major objective of the law, or risk achieving it by unacceptable means.

Taken together, the legislated or contractual changes

to the law can be organized into three problem areas: inadequate control of costs, inequities between hospitals, and inequities between payers. Obviously, these categories are not completely independent, with changes of one type likely to affect other aspects of the law as well. For example, many of the corrections aimed at increasing equity between hospitals also improved the equity between payers. Many amendments to Medicaid's payment methodology were motivated by inequities created at hospitals with a high percentage of Medicaid revenues. Improving their lot indirectly improved the equities between payers since the solutions invariably increased Medicaid's rates of payment. Despite these overlapping objectives, most of the requested and executed changes were motivated by one purpose, and this differentiation assists in organizing them.

Table 5.1 summarizes all the problems, the corrective actions taken (if any), notes whether the solution was done legislatively or through the successor Blue Cross contract (HA-30), and assesses the overall impact of the change (corrected (++)), improved but provision is still weak (+), no change (0), or changes make the provision worse than before (-).}

Table 5.1 Summary of Problems Identified in Chapter 372 and the Blue Cross Contract (HA-29) and the Corrections Made

PROBLEM	ORIGINAL PROVISION	CHANGES MADE	METHOD*	EFFECT
Inadequate Control of Costs:				
Volume adjustment rewards hospitals for drop in discharges followed by increase the following year	Hospitals with decrease in discharges in Yr1 followed by smaller increase in Yr2 result in a net increase in payment for a net decrease in discharges.	Measures of changes in volume are taken from a fixed base.	C	++
Volume adjustment too generous with the large downside corridors.	Corridors of 7% per year. Moving base of measurement can accommodate up to decrease of 20% with no decrease in revenue.	Fixed base of measurement. Downside corridors reduced to 4, 6, and 8% and case mix adjusted for most hospitals.	C	++
Funded depreciation not required by non-BC payers. Results in a weak provision and eventual double payment.	BC contract required depreciation to be funded. Other payers do not. Depreciation paid but can be used for other purposes. At purchase time, capital again paid due to the passthrough of interest costs.	none	C	0
Exceptions categories excessively broad with few criteria to evaluate requests. Process often not followed.	Broad categories for requesting exceptions with few criteria, no process outlined.	Responsibility shifted to RSC. Process and criteria established, including peer comparisons of costs. Most categories eliminated but replaced with a uniform .44% markup added to every hospital BOP.	C	++
Proxies for measuring inflation are industry based and measure actual earnings, not wage levels.	AHE proxies used to 6/10 of the labor categories	none	C	0
Fixed labor provision is retrospective, increases costs, & is asymmetric, without requiring additional monies to be passed onto labor.	Hospitals get year end labor cost adjustment upward if actual inflation exceeds projection. No requirement that these additional labor payments be passed onto labor	none	C	0

Table 5.1

PROBLEM	ORIGINAL PROVISION	CHANGES MADE	METHOD*	EFFECT
Incentives for merger and consolidation need to be strengthened to achieve bed reduction.	MAC of combined institution guaranteed in merger. In merger where 1 of facilities is closing, remaining hospital gets one time payment of 50% of closed hospital MAC.	Hospital payments can exceed one time 50% MAC payment. If no merger involved savings to system allocated to other hospitals by offsetting their productivity factor.	C	-
No control over non-DON capital. All capital costs are passed through and can result in double payment.	All non-DON capital is passed through. Capitalized operating expenses remain in MAC, while added capital costs to BOP.	None	C	0
No enforcement of DON operating or approved expenditure levels.	All DON approved expenditures must be passed through. No enforcement or monitoring.	RSC determines annual incremental costs of approved DON. May use criteria of reasonableness. Can not duplicate any adjustments made elsewhere in calculation of BOP.	C	+
Encourages unbundling of services to non-hospital setting to take advantage of downside corridors.	Large downside corridors, with no explicit exclusion of unbundled volume, no explicit policy against effectively double billing.	Contract requires hospitals to transfer off from base inpatient volume and costs associated with reorganization. Outpatient services are not similarly controlled.	C	+
Automatic ancillary adjustment results in overly generous payments.	Guarantees 2.4% allowance on total costs of inpat. ancillary services. Provides no marginal allowance on 0-4% increase in volume.	Adjustment eliminated and replaced with a less expensive technology factor.	C	+
Non-DON exceptions are asymmetric. Does not take into account system wide effects.	Exceptions for increases in costs do not require systemwide review of effects. Always increase costs, while ignoring decreases in costs at other hospitals (cost shifting.)	None	C	+

Table 5.1 Continued

PROBLEM	ORIGINAL PROVISION	CHANGES MADE	METHOD*	EFFECT
Bad debt and free care not sufficiently distinguished so that hospitals may not make appropriate collection actions before an account is labelled bad debt. Free care recipients are not protected from collection actions.	Private sector picks up total costs for BDFC. BD and FC not clearly defined. No requirements for free care eligibility. No specific exemptions for collection actions.	RSC promulgated regulations more clearly distinguishing between BD and FC. Accounts are subject to audit. FC policy outlined to include income, family size, and assets. Certain populations specifically excluded from collection actions.	L	++
Productivity factor applied to approved exceptions.	Productivity factor applied to exceptions, thereby reducing approved amount by 1-2%.	Exempt exceptions from productivity factor.	L	-
Inequities Between Payers:				
Standardizing payment methods for all payers has resulted in inappropriate apportionment of liability. (and very high cost to charge ratios for some services.)	Law divides total hospital charges among payers based on charges accrued by each payer. Using charges to allocate liability may result in cross-subsidization between payers due to charge structures in many hospitals.	None	C	0
No protections from cost-shifting once Medicare shifted to DRG based payments.	None	Cost shifting provision protects non-Medicare payers.	L	++
Charges not prevented from falling below costs. BC may not always get its discount.	No provision for those hospitals which set charges lower than BC costs.	Provision disallows charges from falling below BC costs. costs	L	0
Privately negotiated contract does not allow participation from other payers.	Law incorporates successor contract, silent on opening up process to other payers.	None	C	0

Table 5.1 Continued

PROBLEM	ORIGINAL PROVISION	CHANGES MADE	METHOD*	EFFECT
Payers do not realize any of the savings achieved by hospitals.	Hospitals retain any savings realized.	Hospitals split 50:50 savings with payers for refinanced debt and over-estimation of inflation for labor.	C	+
Inequities Between Hospitals:				
Inequities of the law result in favoring of inefficient hospitals.	1981 Actual costs as base year freezes inequities and inefficiencies. Efficient hospitals have difficulty in meeting productivity factors.	None	L/C	0
Volume adjustments are not case mix adjusted to accurately reflect patient intensity at hospital. May result in over and under-payments, and patient dumping.	No case mix adjustment. Hospital can apply for case mix exception.	Case mix adjustments are used in volume adjustment. Insufficient protections from DRG creep .	C	+
Medicaid receives a double discount	Shifting Medicaid to paying a % of charges + legislated 5.5% discount results in double discount.	Technical corrections removed one of the discounts.	L	++
Payment for Bad Debt and free care at Boston City Hospital inadequate	Cap set on private sector liability for BDFC set at 125% of PS costs, yet BDFC at BCH accounts for 40% of its costs.	Ceiling raised to 214% of PS liability	L	++
Encourages hospitals to hang onto Administratively Necessary Days (ANDs)	Methodology incorporates weighted average per diem that rewards hospitals for keeping ANDs.	Technical changes corrected this problem.	L	++
Volume adjustment traps hospitals in growing areas due to the limits on the upside corridor.	Upside corridor for days was zero with 50% marginal costs.	Hospitals may apply for exception due to extraordinary circumstances, giving a one time increase in BOP.	C	++

Table 5.1 Continued

PROBLEM	ORIGINAL PROVISION	CHANGES MADE	METHOD*	EFFECT
Volume adjustment may discourage hospitals from affiliating with HMOs and PPOs.	Volume adjustments do not treat volume increases due to affiliations separately. Affil. could increase volume, but recognition of costs would probably not meet actual costs.	HMO volume increases treated separately and MC increased to 60% of average costs. Other managed care providers not included.	C	+
Volume incentives are not neutral to extraordinary circumstances (like strikes) that may disrupt services	Volume measures are not adjusted for reductions in service that are independent of the incentives of in the law.	None	C	0
Limits on OPD charges at Boston City Hospital (1982) discourages access for Medicaid patients.	Limitations on Medicaid liability for OPD charges.	Limits lifted.	L	++
Method of paying for bad debt and free care still resulted in discrimination and poor access.	Costs of BDFC were added to level of charges. Hospitals which provide uncompensated care have higher charges, making them less competitive.	Hospitals pay into a pool for BDFC at uniform rate. Above average providers of BDFC get more from the pool than they paid in and vice versa.	L	++

KEY:

- L Legislated amendment
- C Change made in the Blue Cross Contract HA-30
- ++ Change corrects the problem
- + Change partially corrects the problem, does not
- 0 No effect, provision remains unchanged
- Change Makes the provision worse

5.2 Increasing the Ability of the Law to Control Costs

According to its critics, the original hospital contract (HA-29) was too liberal in its payment for hospital services in many areas. Several of the analyses performed in Chapter 4 showed this to be the case. Not only did the law "reward" hospitals for shifts in utilization that were already occurring to the outpatient department, but the law insulated the hospitals from experiencing declines in revenues to parallel declining inpatient utilization. Therefore, payments exceeded costs (as designed) and hospital profit margins increased during the first three years of law.

These truisms did not pass unnoticed by the Commission and the payers. The Commission and Blue Cross had several provisions which they wanted to tighten, including increased prospectivity and less generous exceptions and volume adjustments. In addition, the payers wanted to begin to share in some of the savings realized by the hospital industry. To varying extents, improvements in these areas were made.

At the heart of the law, the degree of prospectivity was increased by eliminating (1) the majority of exceptions

that hospitals could apply for and (2) streamlining the ancillary volume adjustments into a flat percentage add on (in the form of a "technology and new programs adjustment.") In addition to tightening the payments made for these provisions, discussed next, these changes reduced the proportion of the hospital budget that was determined retrospectively. However, the law still allows numerous adjustments at year-end and remains retrospective in many areas (inflation adjustments, DON operating costs, DON capital costs, and the remaining allowable extraordinary exceptions.)

Numerous overly generous provisions were improved with the changes in the successor contract. Many of these problems, if not totally corrected, were significantly improved. The volume corridors were reduced to two percent per year (cumulative), using a fixed base from which to measure the changes. Hospitals could no longer decrease their admissions in year one, followed by a smaller increase in year two, resulting in an overall increase in revenue for a net decrease in admissions. In addition, decreases in volume with no reduction in revenues would be limited to eight percent over the three years (versus the previous 21%.)

Another important change in the volume adjustment is in the use of case mix adjusted discharges for measuring

volume. Not only does this provision improve equity between hospitals, but it is likely to increase payouts to hospitals. This is because admissions are highly variable and coding is highly subject to manipulation to increase revenues. RSC analysts conservatively estimated that the changes in the inpatient volume adjustment would increase payouts by about 33 percent.

The contract also eliminated the generous automatic inpatient ancillary adjustment which accounted for about 15% of the increases in costs. However, but it was replaced with a "technology and new programs factor" which adds .76% to the total hospital costs. This substitute will cost about 10 percent more than the provision it replaced.[6]

The contract also tightened up the unbundling incentive for inpatient services, by requiring that unbundled volume (for example, laboratories, and other ancillary services) be transferred off from the hospital volume statistics and costs. Previously, the law encouraged unbundling of services to non-regulated setting. Hospital costs could decrease volume up to 7% without a reduction in revenue. Hospitals could then bill separately for these services,

6. The one percent technology factor can be compared to the 2.4% automatic ancillary adjustment. Since ancillary costs account for about half of the hospital costs, this provision added about 1.2% to hospitals' bases, compared to the one percent technology factor.

thereby securing double payment. This provision is too little, too late. It does not apply to services already shifted outside the hospital (many hospitals had already reorganized and rebundled services) and it does not apply to any outpatient services.

As mentioned above, the categories of exceptions were severely curtailed with exceptions only being considered for "extraordinary costs" and DON projects. "Extraordinary" exceptions are limited to a one time adjustment, may include changes in medical practice, must exceed .5% of the MAC, and be "reasonably outside the control of the hospital." Though this may appear vague, the parties intention was to replace virtually all exceptions granted under HA-29 with a uniform mark-up of .44% of the hospital's basis of payment. When combined with the new measure for volume (using casemix adjusted discharges), these two provisions are meant to eliminate the need for exceptions. The allowance about halves the amount previously spent on exceptions (in 1983-84 about 12% of the increases in total payments.)

One area that the contract significantly improved was the process by which DON exceptions are approved. After three years of performing exceptions review, Blue Cross transferred this responsibility over to the Commission. Tensions between the hospitals and Blue Cross had been increasing as analysts attempted to trim back exceptions

requests. Once housed within the Commission, uniform criteria were developed for review and peer comparisons were done to calculate cost allowances. Though likely to be more restrictive than Blue Cross in determining allowable incremental costs for projects, the control point remains the D.O.N. approval of the project. In the past, this process has been highly politicized, with a track record that does not bode well for containing costs. In FY 1984, over 93% of the projects have been approved, with over 93% of the requested costs being approved.[7]

There were several provisions which did not get corrected and the hospitals continue to reap the benefits of overly generous payments. First, hospitals receive adjustments for their labor costs in years when inflation was under-estimated at the beginning of the year. Yet these monies continue to not be required to be passed onto labor. Second, the law still does not require funded depreciation. That is, depreciation is an allowable expense but once the asset is fully depreciated, a hospital can turn around and borrow to purchase a replacement and have the interest fully paid for as well. Third, non-DON capital continues to be totally uncontrolled. In addition, the .76 technology and

7. Sebaste Committee on Post Audit and Oversight, "Hospital Spending in Massachusetts, Fiscal Year 1984," Boston MA, 1984.

new programs adjustment may undermine efforts to control hospital spending in this area. Fourth, the majority of the labor proxies continue to be industry derived (and driven.) Finally, the hospitals successfully argued that the productivity factor was never intended to reduce approved exceptions, hence these approved costs are excluded from productivity offsets.

The payers did manage to partake in some of the savings realized by the industry, although the provisions do not go nearly far enough to substantially affect premiums. In instances where hospitals refinance their outstanding loans at lower interest rates, any savings will be split with the payers 50:50. Similar sharing occurs with overprojections for inflation. Hospitals will have to give back half of the over-estimated portion. All reduced costs due to reductions in utilization or improved efficiencies remain in the hospital coffers. Another provisions which appears to benefit the industry and not the payers is in the savings accrued due to a hospital closure. Systemwide savings are used to offset the productivity factors applied against the other hospitals.

5.3 Increasing the Equity Between Hospitals

Chapter 372 and the Blue Cross contract treat all hospitals identically. Besides differences in volume or uses of ancillary services, the contract does not distinguish between types (either by size or teaching status, for example) of hospitals. Such equality before the law results in substantial inequities between hospitals. Several changes in provisions sought to remove penalties levelled against hospitals with high proportion of Medicaid and uncompensated care and legitimate volume increases.

One of the most important sources of the inequities, the application of the productivity factors to all hospitals, is very unlikely to be changed. Obviously, the industry is split about this provision, with the larger hospitals (with more opportunities to realize savings) having the upper hand. The provision was written by the Massachusetts Business Roundtable and is off limits politically. The uniform application of the productivity factors results in the efficient hospitals not being able to make the mandatory reductions in costs without cutting services or staff. Conversely, inefficient hospitals can reduce their costs with little or no effect on service

provision. In effect, the efficient hospitals end up being penalized for past "good" performance.

However, in other important ways the amendments to C.372 improved the equities between hospitals in two ways: (1) they increased the payments for Medicaid and uncompensated care, thereby eliminating previous incentives to discriminate against Medicaid or uninsured patients, and (2) they removed the penalties for legitimate volume increases. Each is described next.

Improving Access

Numerous legislated changes between 1982-1986 improved the access Medicaid and uninsured patients had to hospital services. Because the hospitals which benefitted the most from these amendments are not in general the large teaching hospitals (Boston City Hospital being the only exception), these provisions reflect two phenomena: first, the increasing awareness that access is a serious system problem and that without redress the presently unaffected hospitals would eventually be affected, and second, the health of the state economy and the budget surplus. Without additional dollars to increase Medicaid's historical payment rate (averaging around 85 cents for every dollar of costs, or a shortfall of 15%), access for the Medicaid population was not going to improve. Likewise, without increased private dollars for uncompensated care and an improved method of

their payment, hospitals were not willing to commit fixed resources to these services. It should be noted that as long as the private insurers could get their premium increases approved, having the private sector increase their liability essentially meant that the working, insured population was paying for the costs of uncompensated care (a private tax, so to speak.) The Medicaid and uncompensated care provisions are discussed separately.

Several provisions sought to improve access to hospital services for Medicaid patients, especially at Boston City Hospital. In 1984, Chapter 183 was enacted to increase access and financial stability at Boston City Hospital by increasing payouts to this municipal hospital.[8] The ceiling on private sector liability for bad debt and free care was essentially lifted, thereby increasing monies for BCH and costing the private sector \$10 million. The provision highlights the role the hospital plays in delivering care to the city's poor (who could wind up at other hospitals if corrections were not made).[9]

8. The law may end up affecting other hospitals as well, depending on their payer mix and the amount of bad debt and free care. The amendment also may have shifted some of these costs from the commercial insurers to Blue Cross, depending on the exact payer mix at the hospital.

9. The chapter also increased Medicaid's access to outpatient services, costing Medicaid an additional \$14 million.

In addition to improving BCH's situation, the state also sought to improve Medicaid beneficiaries' access to services by increasing its overall rate of payment to all hospitals. In the original law, in switching from a per diem methodology to paying its share of the basis of payment, Medicaid ended up getting its historic discount twice, resulting in excessively low payment rates.[10] The resultant shortfall as a percentage of the correct Medicaid payment was as high as 57% in one hospital, with over 25 hospitals having shortfalls of over 32%.[11] By removing the double discount, Medicaid's rate of payment was increased to about 90% of costs.[12] Interestingly, these amendments went beyond simply correcting the technical problem, the double discount. It established incentives to encourage hospitals to take Medicaid patients. To address the poor distribution of Medicaid patients throughout the hospital system, hospitals which increase their Medicaid utilization will disproportionately increase their Medicaid

10. The Coalition members agreed to continue Medicaid's historical discount from the other payers based its perception that Medicaid patients were generally of lower intensity than average.

11. See Jonathan Axon, Staff Analysis of the Double Counting Problem, Rate Setting Commission Files, Boston MA, 1984.)

12. In addition, Medicaid agreed to pay back \$55 million in shortfalls over two years.

revenues.

Furthermore, the chapter addressed important access questions for the uninsured populations by: (1) establishing criteria for hospital credit and collection policies, (2) identifying populations that would be spared collection actions, and (3) ensuring access for General Relief recipients. These provisions had different beneficiaries in mind.

Standardizing credit and collection policies attempted to limit private sector liability. The private sector had agreed to pay for the costs of uncompensated care in full. With such underwriting, a hospital has no incentive to pursue any collection actions. Yet appropriate collection actions and determination of Medicaid eligibility should be taken by the hospital to reduce the costs of bad debt.[13] In addition, most hospitals did not have enforceable or auditable free care policies. Now that these services were

13. Changes in credit and collection policies at the Massachusetts General Hospital exemplify what hospitals can do to benefit from changes in payment policies. Prior to the implementation of C.372, Massachusetts General Hospital classified patients as free care upon admissions, and classified other patients who could not pay their bill as bad debt. After the passage of the law (and more liberal reimbursement for free care than for bad debt), the hospital changed its policy and now classifies patients after the collection process. The hospital reported no bad debt in 1982 or in 1983. See David R. Veroff, "Access to Health Care and Cost Control Systems," unpublished paper (Boston MA, RSC Files, 1984.)

explicitly the responsibility of the private sector, these costs should be auditable.

The second issue, protecting free care eligible patients from inappropriate collection actions benefitted the poor. The Commission required hospitals to consider family size, assets, and income in designing their free care policies. Previously, the Commission had required that hospitals have a free care policy, the design and implementation of which were exclusively the hospital's prerogative. This had resulted in widely varying policies, many of which were ambiguous, unauditable, and often ignored.

Last, the explicit inclusion of the General Relief population from collection actions, was a political gesture by the Dukakis Administration. Clearly GR recipients should be able to meet any hospital's definition of free care. Though this legislation surely reflects real concerns about access and patient dumping, there is a more political interpretation of this directive. Back in 1979, Dukakis was responsible for dropping the General Relief population from the Medicaid rolls. This decision cost him the political support of many influential Democrats and contributed to his loss of the 1980 democratic nomination for governor. The Dukakis Administration is in a sense trying to restore General Relief benefits by ensuring access to care. And, as

a further political coup, these 'benefits' will be 'restored' at no cost to the state, since the private sector pays the costs of uncompensated care.

In its most recent effort to increase access for uninsured patients, the state established a bad debt and free care pool for payments to hospitals. The pool resolves the gap between the theory and practice of the previous payment policies. In theory, the access problem had been corrected, through the private sector guaranteeing payments for these services. In practice, however, hospitals found the payment mechanism unacceptable-- it required them to increase charges. With increased pressure to secure patient volume, hospitals did not want to raise charges and thereby risk losing managed care contracts or other sources of charge paying patients. By taking the solution outside the charge structure, access in theory and in practice should be improved.

The pool is interesting because it requires inter-hospital transfers, a concept not favored by the industry. Essentially, each hospital is taxed at the statewide average per cent of bad debt and free care. Hospitals with greater than average bad debt and free care receive payments from the pool that exceed their payments into the pool, while hospitals with below average uncompensated care pay more into the pool than they get

back. By assessing all hospitals equally for the costs of uncompensated care in the system, hospitals charges will be increased uniformly. This reallocative scheme was extracted as a concession from the industry when it pulled out its support for the renewed Medicare waiver and decided to be paid on the basis of DRGs (October 1985.)

Refining the Volume Adjustments to Improve Equity Between Hospitals

Three amendments sought to increase the equity between hospitals for legitimate differences and increases in volume. The most important change to the volume adjustment is the use of case mix adjusted discharges for measuring volume. This refinement in the volume adjustment increases the equity between hospitals by appropriately increasing payments to hospitals with increasing intensity of case mix, while decreasing payments to those hospitals where intensity is decreasing, even if volume is increasing. Not only does this change correct the incentive to transfer complex cases out (since before they threatened a fixed revenue), but it eliminates the incentive to fill a minimum number of beds with easy cases. Geographically isolated hospitals are excluded from this provision. While more accurate, this provision improves the financial condition of the large urban teaching hospitals, while making it more difficult for hospitals with declining census and servicing patients of

below average case mix complexity. It reveals the relative power within the hospital association, with the larger urban hospitals continuing to better their position at the expense of smaller, less sophisticated hospitals.

Two other changes in the contract improved the volume adjustments made for increased growth due to unusual circumstances. An additional category of exceptions was added for "extraordinary circumstances" so that hospitals in areas of growth (like the South Shore) would not be constrained by the upside corridors. Hospitals can apply for a one time exception to increase the basis of payment for uncontrolled increases in costs, thereby correcting the "trap" hospitals in areas of growth experienced. Exceptions were also added for increased volume due to affiliations with Health Maintenance Organizations. By limiting the exception to HMOs, the provision indirectly discourages other forms of managed care programs, like Preferred Provider Organizations. It is interesting to note here that Blue Cross is an active player in the HMO market, directly owning two HMO's and participating in the management of five others, and is not involved in the PPO market. One can not help but interpret the provision as benefitting Blue Cross in its constant drive for increased market share.

Of note, the volume adjustments were not made to be neutral to the effects of a strike. Hospitals continue to

be insulated from the effects of limited strikes in that the volume corridors protect them from the first two percent decline in utilization before marginal cost pricing applies. This provision is hardly surprising given that labor does not participate in the contract negotiations.

C) Improving the Equity Between Payers

Only a couple of provisions have directly improved equity between payers as their primary purpose. This is partly because many of the technical provisions are housed with a Blue Cross contract. In addition, many of the provisions that do in fact benefit the equity between payers, were intended to improve equity between hospitals. Of note here are the provisions that improve Medicaid access to services, while at the same time reducing the differences between the payments made by payers.

The other payers have consistently found the law and its incorporation of a privately negotiated contract to be problematic. As could be predicted, Blue Cross and the hospitals have not agreed to open up their negotiations to outsiders. One amendment further protects Blue Cross' advantage by ensuring that charges can never be set below

14. There are several small hospitals where costs are above charge levels. Boards approve such charges, assuming that grants and gifts will cover the difference between costs and charges.

the Blue Cross basis of payment.[14]

Although basing the apportionment of total hospital costs on charges could result in inequities between payers, hospitals have consistently avoided regulations of their charge structures. Hospitals must file their charges with the Commission on an annual basis for audit purposes and as a matter of record, but charges for individual services have never been regulated by the Commission. This area of hospital control is particularly guarded since administrators are very reluctant to give up their ability to manage revenue generation.

When Medicare began to use DRGs as the basis of payment, the other payers immediately sought to protect themselves from possible cost shifting. The fear was that hospitals, through their charge structures would cost shift shortfalls onto non-Medicare payers through the process of charge rationalization. To this end, the historical proportion of Medicare charges and discharges are used to adjust the current liabilities of the other payers. As a result, if the percent of non-Medicare charges does go up due to some form of charge rationalization, the other payers' liability will not increase. Thus, the non-Medicare payers are protected against any cost shifting that might occur from any under payments from Medicare. Of note, if Medicare utilization decreases faster than the other

payers', the private sector liability will decrease. The Health Insurance Association of America assumes this would occur and has estimated the savings at \$21 million. This amount is about equal to its increased liability from Medicare shifting to DRGs and taking away its contribution to free care.

5.4 Summary of the Amendments and Their Implications

The amendments to the law have focused on improving the cost controls, increasing equity between hospitals, and increasing equity between payers. What have been the overall effects of these provisions?

Several of the revisions to the law increased its ability to control costs. Tighter provisions were secured in reducing the volume corridors and fixing the base from which measurements are made, significantly restricting the exceptions categories, transferring the determination of DON operating and capital costs from Blue Cross to the Rate Setting Commission, and increasing the prospectivity of the law. Other provisions will also reduce the costs of to payers--such as the decrease in the basis of payment for decreases in case mix intensity, the sharing of the savings accumulated by the

overestimation of inflation, and the incentive to refinance any outstanding debt.

However, in many key areas of hospital costs, the majority of the increases continue to be determined retrospectively, passed through, or generously adjusted for. For example, the costs of technology acquisition continue to be unregulated, with the passthrough of all capital and equipment. In addition, the technology and new programs add-on will replace the costs removed by the elimination of the automatic ancillary adjustment. Hospitals appear to have been adept at safeguarding these areas that are critical to their supply of patients and physicians. Other give-aways, like the fixed labor and funded depreciation provisions, while not amounting to big dollars, do reflect the generous outcomes of negotiated solutions.

Hospitals were also careful to secure provisions that exempt certain types of volume increases- "legitimate" volume increases that shouldn't be subject to the volume corridors. These include the HMO and areas of high growth exclusions. Another area of unknown cost increases is the case mix adjustment of the volume allowance. Clearly this adjustment aims to make payments both

more accurate and more fair. However, as discussed below, because case mix intensity is used to adjust revenues, it will be subject to strategic manipulation by administrators. Without adequate protections against "upcoding", the revisions could increase payouts to hospitals for no real increase in service provision or intensity of patients treated.

The Rate Setting Commission performed detailed projections of changes in case mix intensity and their effects on costs. The Commission found that assuming identical volume and case mix changes to those experienced between 1982 and 1984, costs would increase by over \$19 million, for the life of the 3 year contract. Put another way, applying the same volume and case mix, HA-30 volume adjustments would cost 33 percent more than HA-29 volume adjustments.

However, there are several reasons to hypothesize that the changes experienced during this new contract period will be different than those under the old contract. First, alternative providers, such as preferred provider organizations, surgical day care programs, health maintenance organizations, and improved benefits management will decrease utilization of hospital services. Second,

Massachusetts is experiencing declining admissions. Third, hospital personnel were learning how to code during this period and recorded case mix tends to increase during this start up period as medical records personnel improve their knowledge of coding procedures (or prefer to err on the side of the hospital.) Similar increases may not occur in the next three years, as personnel become more experienced and the coding settles at the "correct" level of intensity that accurately reflect the activities of the hospital.

On the other hand, DRGs have never been used for reimbursement purposes and many hospitals will ensure that coding (itself highly variable with considerable physician discretion) maximizes revenue. This phenomenon of hospitals deliberately and systematically shifting their reported case mix has been dubbed "DRG creep".[1] The RAND Corporation found that over three years, changes in coding practices accounted for almost 75% of the total increases in casemix, of which improvements in data quality contributing 40%, while payment system

1. Donald W. Simborg, "DRG Creep: A new Hospital-Acquired Disease" New England Journal of Medicine Vol. 304 (1981), pages 1602-1604.

induced changes (including efforts to maximize reimbursement) comprised the remaining 35%. [2]

The provisions of HA-30 encourage a hospital to compete for volume and casemix in an effort to maintain market share given declining utilization. The contract is careful to protect these strategies in maintaining hospital size, by case mix adjusting volume, excluding certain volume from the corridors, and generously paying for changes in technology. It also assumes that there will be winners and losers in the system. However, it is possible that volume and case mix may simply increase. There is ample research indicating the high variability of hospitalization and surgical rates between areas, with no explanation except the differences in physician practice patterns. [3] A recent study of variations in practices in Maine found that there

2. Stuart Guterman and Allen Dobson, "Impact of the Medicare Prospective Payment System for Hospitals", Health Care Financing Review/ Spring 1986/ Vol.7, No.3, Table 5.

3. See John E. Wennberg and Alan Gittelsohn, "Variations in Medical Care Among Small Areas," Scientific American, Vol.246 (1982), pages 120-34; and Klim McPherson, et al, "Small Area Variations in the Use of Common Surgical Procedures: An International Comparison of New England, England, and Norway," New England Journal of Medicine, Vol. 307 (1982), pages 1310-1314.

was 3.5 fold variation in the rates of hysterectomies and that 90% of medical and surgical admissions fell into DRGs with admission rates that were even more variable.[4] This study concluded that without adequate safeguards against higher admission rates, payment systems which use case mix may induce both higher utilization rates and higher case mix indices. It is important to note that the higher rates would still be within acceptable medical practice.

Given the incentive to upcode and the experience of increasing case mix for the Medicare program, it is reasonable to assume that the MA payment system will not avoid such increases in case mix intensity. Analyses of various changes in case mix adjusted admissions are shown in Table 5.2. It shows that, for example, an annual mean increase in case mix discharges of one percent will increase payouts over the provisions of HA-29 by over \$14 million, while an average annual one percent decrease in case mix adjusted admissions will result

4. John E. Wennberg, Klim McPherson, and Philip Caper, "Will Payment Based on Diagnosis-Related Groups Control Hospital Costs?" New England Journal of Medicine 1984;311:295-300 (August 2).

Table 5.2 Changes in Case Mix Adjusted Discharges and Their Effect on Costs

Estimated Differences in Costs Between HA-29 and HA-30 Volume Adjustments

Mean Change In Casemix Adjusted Admissions	Mean Change In unadjusted Admissions	3-Year Total HA-30 Volume Adjustments	3-Year Total HA-29 Volume Adjustments	(Col.3-Col.4)	HA-30-HA-29 1985 (In 000s)	HA-30-HA-29 1986 (In 000s)	HA-30-HA-29 1987 (In 000s)
				3-Year Total Differential Between HA-29 & HA-30			
-10%	-11.2%	-235,551	-79,576	-155,975	-24,284	-80,251	-51,440
-9%	-10.2%	-205,782	-63,501	-142,280	-19,428	-74,312	-48,541
-8%	- 9.2%	-175,691	-48,427	-127,265	-14,253	-67,883	-45,129
-7%	- 8.2%	-145,709	-34,044	-110,715	- 9,574	-60,479	-40,663
-6%	-7.2%	-114,748	-23,762	- 90,987	- 5,524	-52,343	-33,120
-5%	-6.2%	- 84,593	-14,712	- 69,881	- 2,699	-42,348	-24,835
-4%	-5.2%	- 56,041	- 6,926	- 49,116	- 939	-31,026	-17,150
-3%	-4.2%	- 30,093	854	- 30,947	167	-18,984	-12,130
-2%	-3.3%	- 7,188	8,718	- 15,906	1,414	-10,869	- 6,452
-1%	-2.3%	11,899	17,780	- 5,881	3,392	- 7,367	- 1,907
0%	-1.3%	31,376	28,688	3,081	5,912	- 5,922	3,090
1%	- .3%	56,976	42,517	14,459	8,707	- 1,976	7,728
2%	.7%	90,027	59,542	30,485	12,111	3,688	14,686
3%	1.7%	125,164	80,017	45,146	15,941	8,992	20,214
4%	2.7%	162,397	102,764	59,633	19,288	13,669	26,676
5%	3.7%	201,411	127,674	73,737	22,212	18,480	33,045
6%	4.6%	242,072	153,698	88,374	25,251	23,524	39,599
7%	5.6%	283,705	180,943	102,761	28,454	28,127	46,180
8%	6.6%	326,688	209,031	117,658	31,800	32,346	53,511
9%	7.6%	370,504	237,599	132,904	35,097	36,654	61,153
10%	8.6%	415,131	266,818	148,312	38,282	41,041	68,990

Source: Jonathan Axon, "HA-30 Volume Study", Rate Setting Commission Files, Boston MA, 1984.

in savings of almost \$6 million. A conservative estimate of the change in case mix adjusted admissions would be an annual increase of at least one percent. Case mix data submitted to the Commission on average annual increases of 1.2%, 1.3%, 2.2%, and 2.3% for 1980-84. Given that this information will be used for payment purposes, one would expect to see an increase in the case mix indices for future years.

Numerous legislated amendments to the law improved the financial condition of many hospitals, and as a by-product, increased access for Medicaid and uninsured patients. The provisions to increase Medicaid payments alone will increase payouts to hospitals by at least \$79 million --\$10 million for BCH alone, \$55 million payback to hospitals for the elimination of the double discount, and \$14 million for increased Medicaid payments for outpatient services. The hospitals most affected by these amendments will be the high Medicaid hospitals and hospitals with high numbers of ANDs.

It is interesting to note the particular attention that Boston City Hospital has received. This hospital has succeeded in making the extraordinary circumstances of its payer mix a state

issue. That the legislature would act on such a narrow interest bill indicates the important role this and other municipal hospitals play in urban areas. By providing care for the state's poor, other hospitals are relieved of this responsibility. In a sense, many hospitals in the Commonwealth had a stake in improving the distressed financial condition of the inner city hospitals.

In an era of increasing cutbacks in the provision of social services, it is surprising to witness Medicaid agreeing to repay the hospital industry \$55 million of the \$80 million in estimated shortfalls from the double discount. While it may be tempting to conclude that Medicaid was finally owning up to its underpayment or that policy-makers were finally moved by the injustice of discrimination against Medicaid clients, I think a more compelling explanation can be found in an examination of Section 51 of the law. After all, for years Medicaid was paying about 80% of its costs and did not increase its payment ratio. However, beginning in Fiscal Year 1985, the hospitals' ability to shift shortfalls from other payers onto the private sector was significantly limited. This limitation increased pressure on Medicaid to pay

more of its fair share of costs, since their previous underpayment could not be met by other payers. In addition, the state's surplus has to figure into the political calculation of "affordability." The state had the resources to increase access, the surplus was well known at this point, and continued underpayment jeopardized the balance of interests holding the law together.

Hospitals were not only concerned about the inadequacy of Medicaid payments but also about the financial constraint imposed by the provision of uncompensated care. As hospitals reacted to the inadequacy of the payment methodology, the un- and under-insured were finding it increasingly difficult to gain access to many but the municipal hospitals.[5] The state was increasingly aware that the costs of uncompensated care were unfairly falling on a small number of hospitals. Without changes in the payment methodologies, the state was on a path towards a two-tiered system of care, with

5. Richard Know, "Some Local Hospitals 'Dump' The Uninsured," Boston Globe, February 6, 1984, page 31; and Boston City Economic Transfer Task Force, "Who Cares for Those Who Can Not Pay? Greater Boston Hospitals and the Issue of Economic Transfers", (Boston: House Officers' Association, BCH, February 1984.)

the poor receiving their care at a handful of facilities and the fully insured going elsewhere. When the political opportunity came, the state moved to implement a reallocative system. Interestingly, though improving the equity between hospitals, this action was not prompted by the industry. This tells us that the hospitals which benefitted from this provision were not the politically powerful within the industry or they would have made sure "fair" provisions were in place. This amendment required redistribution from the wealthy hospitals to the poorer facilities and represents one of the few concessions from the politically powerful institutions.

It is important to note that despite full payment of the costs of bad debt and free care, it is premature to conclude that access barriers for the poor have been removed. Ensuring payments to hospitals and providing individuals with entitlements to benefits remain very different policies with potentially different results. Hospitals may be unwilling to provide uncompensated care for fear that when the payment system changes next, the costs will no longer be fully covered. However, their "payer poor" referral network will

still be in place, but no longer with the financing to cover the costs. Hospitals would then be stuck with a poor payer mix, jeopardizing their financial condition.

5.5 Conclusions

The amendments to the law, achieved legislatively and through changes to the Blue Cross contract, have revealed that the hospitals and the dominant payers are quite adept at protecting their narrow interests. The bargaining between the major payers and between the industry members is at the heart of these issues-- that consumers or the public benefit are really by products of the more immediate issues at hand. Thus, we have seen that powerful hospitals could ensure that casemix adjustments adequately reimbursed them for their costs, while politically weak institutions could not get increased payments for shortfalls until allies were found. Issues that do not divide the industry get resounding approval in either the legislative or negotiation process. The hospital industry is powerful and as long as the payers can pass the

costs on, there is little political support for real cost controls. Putting limits on technology acquisition or increasing sophistication of services is unpopular in any arena--be it the hospital, the legislature, or public rate hearings. Until the political alliances shift, there will be insufficient support to force the resource tradeoffs necessary for real cost containment.

Some amendments to the law reflect an increasingly competitive environment between the hospitals. Unlike its predecessor, the new contract governing payments does not assume the survival of every hospital in the state and takes a bolder approach to instilling competition between facilities. In theory, the contract will cut the budgets at hospitals with declining case mix adjusted discharges and will increase revenues for those hospitals with increasing case mix adjusted volumes. This strengthened provision of the contract will put pressure on hospitals to expand market share and increase intensity. As long as admissions do not increase, "survival of the fittest, and the demise of the weak" is inherent in this model of payment. That the contract does not contain stronger provisions to prevent payment for

data artifact, that is, DRG creep, or to prevent unnecessary volume from increasing beyond its already high levels again reveals the "capture" that took place in the policy making process.

From a cost containment perspective, the law continues to passthrough most of the real cost increases. Despite tightening up of the volume corridors, the exceptions categories, and the automatic ancillary adjustment, these provisions are in large part compensated for in other adjustments that increase payouts to hospitals. All capital and intensification of services appears to be fully financed, either via direct passthrough or adequate adjustments. The law continues to allow several key costs to be passed through virtually uncontrolled (non DON and DON capital, DON operating costs) and remains silent on other important cost controlling provisions (like peer groupings, cost screens on base year costs, or requiring funded depreciation).

These serious omissions emphasize the central role these items play in the financial viability of the hospitals. As discussed earlier in the thesis, capital and intensity of services contribute over 60% to the increase in costs, disregarding inflation. These areas determine the hospital's

economic future and are carefully guarded against regulatory action. Administrators, wary of constraints that might limit their profitability, their ability to maintain physician satisfaction, and hospital prestige, resist any kind of controls on capital and equipment.

To this end, the MHA resisted any imposition of controls over these areas. The hospitals, skillful at negotiations and insiders to their own industry, managed to secure provisions from Blue Cross that are quite generous. In their typical bargaining style, the hospitals defended their extreme positions until the bitter end and successfully warded off more sweeping changes. Blue Cross acquiesced, wanting a signed contract more than a tight contract. After all, as long as it can pass the costs on to its policy-holders it is relatively indifferent to cost controls. Blue Cross spent much of its bargaining power on protecting those provisions that affect its competitive position relative to other payers rather than on containing costs (that all payers would benefit from.)

Not only were the hospitals successful at minimizing outside control over key economic areas of their operations, but it would appear that MHA

successfully negotiated a contract which will differentially increase revenues for the more sophisticated (teaching) hospitals. This contract, much more than its predecessor, will have very different effects on different hospitals because it is more sensitive to changes in volume. By encouraging competition between hospitals, the system will have clear and predictable winners and losers. This new model of the hospital system illustrates the unequal power of the hospitals within the system. The extent to which the smaller, and often lower cost, facilities are the unfair losers remains to be seen.

In addition to the widely varying effects of the contract on different types of hospitals, the contract includes separate provisions for geographically isolated hospitals. Such distinction between hospitals has never formally been made in Blue Cross-MHA contracts and may represent a first step towards selectively contracting with hospitals or designing separate contracts for different categories of hospitals in the future. As increasing financial pressure forces hospitals to survive, shrink, or specialize, we may find a refinement in the contracting with hospitals by type

or size of facility.

The legislative process has been equally inept at securing serious cost controls from the hospital industry. Hospital payment policies continue to be made in the Coalition, with the legislature only going through the motions once the package reaches the State House. In the Coalition meetings, the amendments are written after a series of negotiations with the hospitals and the insurers circumscribes the debate and proposes the solutions. Although the hospitals do not have the same negotiating power in this setting as in the contract negotiations, they do represent a contentious force that must be bargained with. Similarly, the insurers, looking out for inter-payer equities, have secured provisions that protect their relative positions and narrow self interests.

While the mechanisms of making public policy is highly private, these exclusive processes have been opened up slightly since the original law and contract were authored. The Health Care Coalition presently brokers most of the policy changes in the law. With members from virtually every interested organization, its representation far exceeds the cloistered law making that surrounded the final

drafting of the original law. Likewise, the HA-30 process was a little more open than 'private negotiations' might imply. Through the use of its approval power, the Rate Setting Commission could pry its way into an otherwise strictly private negotiating process. However, this role was limited: the Commission was involved in decision-making only to the extent that it was invited to be. It could communicate problems but it had no guarantee of being heard or of influencing the outcomes. Moreover, it can only approve or disapprove the contract--conditional approval, with a list of specific changes was not an option. And in the end, it stands relatively alone, with few allies to help defend tough stances.

It is clear that legislated cost controls are unlikely. Between the hospitals' political power and their historically close relationship with Blue Cross, their combined clout makes enacting serious cost containment legislation difficult. Cost controls via the Blue Cross contract are even more unlikely. Here the hospitals really do have the upper hand, able to walk out of negotiations until it can extract provisions it can live with. The lesson to take from this case study is one that had

been repeated elsewhere in health care policy. In order to gain the support needed to enact policy changes, significant concessions have to be granted to the providers. Once granted, they are virtually impossible to recover.

Chapter 6

Conclusion

This evaluation of Chapter 372 reveals many insights about reimbursement policy and the reactions of regulated hospitals. This chapter summarizes these findings by discussing the effects of the law on hospital costs and utilization and by analyzing the consequences for the overall regulatory process. In addition, Chapter 372 is compared with the new payment strategy based on diagnosis-related groups (DRGs) in order to draw conclusions about the effectiveness of this recent cost containment initiative. Finally, issues that will likely be raised in future policy debates about hospital payment policy are discussed.

6.1 Summary of Findings

A variety of hypotheses about the efficacy of Chapter

372 were investigated. Overall, the rates of increase in hospital costs were reduced significantly when compared with increases in the pre-C.372 period. The rates of increase declined within a year of the law's implementation, showing a significant difference between the rates of increase in the year prior to the law and in the first year after the law was enacted. The increases in costs reflected in part the significant decline in patient days between the pre- and post-periods. Discharges did not decline until 1984. The net effect of the days and discharges experience was a significant decline in average length of stay, due to the relative decline in days. Combining cost and volume measures, costs per day showed an insignificant increase, due to the larger declines in days than in costs. The patients left in the hospital were sicker (case mix has steadily increased) and declining patient days meant that the fixed costs of the hospital had to be spread over fewer patient days. Taking into account these declines in days and costs, the costs per discharge decreased significantly.

These results are consistent with other evaluations of rate setting programs. These studies have shown that rate setting programs have been more effective at reducing the costs per day and per discharge than at controlling per

capita costs.[1] Unlike some per diem rate setting programs (which provide incentives to increase utilization, while controlling the per diem costs), C.372 does not regulate per diem rates but total costs. Therefore, the results of C.372 differ from those of per diem programs due to the varying effects on utilization. Costs per day increased under C.372 due to the relative decline in patient days.

While comparing Massachusetts in the pre- and post-periods indicates a successful rate setting program, these results require a broader base of comparison before conclusions can be drawn about the effectiveness of the law. A simple pre-post comparison of the Massachusetts experience overstates the efficacy of the law because it attributes all reductions in costs and utilization to the law. Yet clearly there were a variety of broad forces acting to reduce costs and utilization at the same time that the law was in effect--including pressures from employers and insurers, increased competition from other providers, and increased pressure from other hospitals looking to increase their market share. Failure to account for these trends unfairly credits the law with the results of these

1. Charles L. Eby and Daniel R. Cohodes, "What Do We Know About Rate Setting?", Journal of Health Politics, Policy, and Law, Vol. 10, No. 2 (Summer 1985), pp. 299-323.

"environmental" forces. Comparisons to regional and national rates of increase attempt to control for these broader trends in declining rates of increase in costs and utilization.

The Massachusetts experience was first compared to the trends of the Northeast U.S..[2] This region was considered to be the most relevant peer group because it exhibits similar costs and utilization patterns. The fact that the group includes a variety of rate setting programs is less of a problem than might be expected. Without C.372, Massachusetts was likely to have some patchwork regulatory system, as existed prior to the law's implementation. Thus, using a mixture of regulatory programs (though heavily influenced by the experience of New York) to compare the results may be appropriate. It should be recognized, however, that this group is not pure control group. No natural experiment, such as the Massachusetts program, has a good comparison, making it difficult to evaluate its effects.

Under this comparison, the Massachusetts program continues to look fairly effective. Chapter 372 was more

2. This group includes New Jersey, New York, Maryland, Maine, Connecticut, New Hampshire, Vermont, Pennsylvania, Rhode Island, and Massachusetts.

effective at controlling total costs, costs per discharge, costs per day, and patient days than the Northeastern states. Other measures, however, including costs per capita and admissions, indicated no significant differences between the two groups. These results indicate the degree to which Massachusetts' experience is similar to that of this peer group: utilization patterns appear to be regional and Massachusetts did not distinguish itself from this group for all of these measures. However, in total costs, costs per discharge, and costs per day, the law managed to keep cost increases below the rates reported for the region, which includes several other regulatory programs.

Because many of the trends affecting Massachusetts and the Northeast are national trends, it is important to compare the law's experience with national data. These comparisons indicated that the Massachusetts' experience was not significantly different from the national trends in declining total costs, ALOS, total patient days, costs per day and per discharge, and inpatient costs per day and per discharge. In fact, national declines in admissions outpaced the MA experience in the post-C.372 period. The Massachusetts system did constrain profit margins more than the national experience. These results temper the conclusion one can draw about the effectiveness of the MA

program. Clearly some portion of the declining costs (closely associated with declining utilization) would have occurred anyway given these national trends.

Before concluding that if Massachusetts had done nothing it would have reduced costs to the same degree, it is important to recognize that a MA-US comparison understates the effectiveness of C.372. This is because the national experience is not a purely unregulated system due to the implementation of DRG-based payments for Medicare and the variety of state regulatory programs. Furthermore, Massachusetts historically has had higher than average costs and utilization, so expecting this state to suddenly fall into the national pattern of costs and utilization is unrealistic.

These results indicate the complexity of evaluating the efficacy of the law. While national comparisons help to put the MA experience in a broader perspective, they do underestimate the effects of the law. These comparisons can be thought of as bounding the interpretation of the results. The national comparison clearly underestimates the efficacy of the law, while the MA pre-post comparison over-estimates it. The regional comparison probably offers a slightly better estimate of the broader trends simultaneously affecting the Massachusetts system. Because

the MA system appears to have out performed the regional norms, we can conclude that the law was effective at containing the rates of increase in costs. The national data indicate that some of the reductions achieved under C.372 would have occurred anyway.

Given these caveats about the relative efficacy of Chapter 372, it is instructive to examine where the law was and was not effective in controlling costs and utilization. As mentioned above, the MA system did bring down costs and utilization similar to the larger national trends. The timing of these reductions did, however, suggest that Chapter 372 was in part responsible for the reductions since the declines in patient days and ALOS preceeded national trends and coincided with the law's implementation.

Equally important are the results of the specific incentives incorporated into the law. The incentives of the law appear to have been successful at shifting utilization of hospital services. Indeed, inpatient expenditures declined as a percent of total expenditures, largely as a result of reductions in routine costs. Conversely, outpatient costs grew because of changes in ancillary use. Total ancillary costs fell during the first year as hospitals cut back on services. During subsequent years, there was a shift in the use of ancillary services from

inpatient to outpatient settings. Routine outpatient costs remained relatively constant, reflecting the lack of response to the incentives to increase outpatient clinic and day surgery use. One possible explanation for this experience is that hospitals had already begun to expand these services prior to the law's implementation. Maintaining a high rate of growth in this area was probably unrealistic.

Analyses of hospital responses to C.372 yielded insights about how the hospitals achieved savings. Hospitals first decreased their overhead costs, reduced lengths of stays, and cut total ancillary costs. After the first year, the ancillary response was more refined, possibly as administrators educated their physicians and set up systems to shift rather than reduce ancillary usage. It is possible that after the first year, most unnecessary utilization was eliminated and hospitals had to shift rather than reduce use to maintain similar levels of quality of care and yet financially benefit from the incentives of the law. Ancillary costs per case mix adjusted discharge continued to increase, indicating that hospitals did not

simply cut ancillary usage to realize savings.[3] In addition, there was no evidence that hospitals achieved savings by reducing labor, bad debt and free care, or education expenses.

These findings suggest that hospitals are not simply profit maximizers, but instead maximize their ability to compete with other hospitals successfully by maintaining high prestige, quality of care, or community/staff support. Hospitals were seen to compete on the basis of these service indicators that would affect both patient satisfaction and physicians' desire to affiliate with the institution. Consistent with this highly competitive view of hospitals, expenditures for capital and equipment (areas of hospital costs that were not regulated) continued to experience high rates of increase.

The industry did not respond uniformly to the law and its incentives. Hospital size was a key determinant of the strategies employed. Smaller hospitals tended to shift

3. Unfortunately, it is impossible to determine from hospital level data the degree of "unbundling" of services to non-hospital based facilities. Such transfer of costs to non-hospital sectors of the health care industry would be a typical reaction to regulation--simply shift the business to an unregulated setting. Without examining the utilization of free-standing laboratories, for example, it is difficult to assess the degree of success of the incentives.

service utilization and increase outpatient volume. Because their medical staffs were smaller and treated less intensive patients, they could respond to these incentives more readily. In contrast, large hospitals decreased total ancillary use, overhead costs, and length of stay. The various responses reflect the differing abilities of hospitals to control cost components. Thus far, it does not appear that either small or large hospitals have an advantage in containing costs. Analyses of teaching versus non-teaching hospitals produced similar findings. This is probably due to the correlation between teaching status and size.

Despite industry fears that C.372 would bankrupt them, the law improved hospital financial performance, both considering and excluding non-operating revenues. This finding contradicted industry fears of the detrimental effects of "increased" regulation (essentially, concerns about their decreased ability to cost shift between payers and the uniformity of the payment system.) Contrary to expectations, hospitals did not rely on philanthropy to balance their books. Rather, they used two strategies: (a) they contained their actual costs, thereby responding to the overall incentive to pocket the differences between costs and budget, and (b) they generated revenues from non-patient

areas (areas not directly regulated but whose net revenues would be used to offset payer liability.) As intended, hospitals were the beneficiaries of these cost reductions, because the payers did not share in the savings until this past fiscal year.[4]

The lack of competitive advantage, at least to date, indicates the importance of a broad approach to cost containment. Because the law had a general objective, to contain costs, and a variety of incentives, hospitals could adopt a strategy that best suited their organization in reducing costs. This flexibility is important not only in terms of equity between hospitals, but also in terms of the hospitals maintaining control over their internal operations. In the longer run, hospital size will make a difference in the institution's ability to meet budget constraints. Small and efficient hospitals will have to resort to service reductions in order to match the efficiencies and savings of the larger hospitals. Furthermore, as patient days continue to decline the remaining patients will be increasing complex. As a result,

4. Consumers can not expect to see any direct benefits until this year when the Division of Insurance takes these reductions into account in establishing allowable premium increases.

small hospitals will have difficulty in competing for and treating patients.

Amendments to the law implicitly acknowledge this change in the configuration of the industry. The current numbers and sizes of hospitals are assumed to shrink via competitive forces, with predictable winners. The survivors will include the larger institutions because they have an advantage in a) treating the increasingly complex patients, b) pursuing options to vertically integrate with a variety of non-hospital based services, and c) maintaining greater access to capital for service renovations and expansions. Smaller institutions, finding themselves treating a declining number of patients and marginal admissions, will suffer revenue reductions. For the geographically isolated hospitals, special protection was implemented to insure their financial stability.

The limitations of this study point to several areas of useful future research that would help to confirm my findings. Two areas come immediately to mind: more detailed regional and national data analysis, and the conduction of a series of interviews with hospital personnel about organizational responses to the law. The first set of analyses, expanded comparisons with regional and national data would reveal the extent to which detailed observations

about the MA experience was due to the law or simply the reflection of broader trends. For example, decreases in routine and overhead costs may be a national trend but without such comparisons the contribution of Chapter 372 to these findings is unclear. Similar comparisons should be done for labor, ancillary, capital, inpatient, and outpatient costs. Case mix adjusted costs per discharge would also improve the conclusions we could draw from such studies.

In addition, a series of interviews with key hospital personnel would reveal the variety of hospital strategies used to contain costs. Aggregate data analyses can only begin to hint of these responses. Interviews with financial officers, administrators, nursing staff, physicians, medical records and admitting desk personnel, and technical workers could shed light on the effects of the law on hiring, use of equipment, discharge planning, quality of care, economic transfers ("dumping"), improved efficiencies. Knowing the specific responses of the hospital to the regulations will assist future policy-makers in making specific, effective policies.

While Chapter 372 included many provisions that could be implemented in other states, it should be recognized that different attitudes towards regulatory solutions and

different political climates will shape the final forms that other states' legislated programs. For instance, the payment differences between payers and the allowable discounts will be one political and economic decision will have to be decided. Another political decision to be made is the degree to which differences between institutions will be recognized. This payment system is quite liberal in its treatment of individual variations in costs--for example, it does not apply cost screens, use peer groupings for comparable analyses, or rely strictly on formulae to determine allowable costs. Other political processes with different relative powers may arrive at a different balance between individual facilities and regional or industry-wide experience. Similarly, the balance between retrospective and prospective elements of the system may differ as a result of bargaining between the involved parties. In this state, the hospital industry is powerful and could ward off a variety of prospective elements and tighter controls that would improve the law's efficacy. Finally, reductions achieved in Massachusetts are likely to overstate potential savings in other states due to the high utilization rates here and their attendant high costs. Other regions of the country, with their lower utilization rates and lower costs, would likely experience less response to a payment system

based on principles included in Chapter 372.

6.1.1 The Regulatory Process

Most outsiders are struck by the highly unusual regulatory process that was used to design the payment system. This is not a straightforward case of regulator and regulatee, with the adversarial or capture relationships that typify more standard regulatory situations. Unlike public utilities, where regulations try to keep price in line with costs to expand output, hospital rate setting attempts to reduce revenues and thereby reduce increases in costs. The problems addressed in rate regulations are very different. In public utility regulation, controls attempt to correct market imperfections due to natural monopoly, inefficient allocations, consumer protection, and highly variable demand or supply for the producers. In contrast, in the hospital industry the problem of costs is essentially one of moral hazard. Here, there is no demand for regulation by the industry or capture of the agency to further industry interests.

If any regulatory theory is confirmed, it would be the political economic one that contends that regulations are written to protect those who value it the most. In this

case, the commercial insurers, teaming up with the business community, pushed this legislation through, against the wishes of the hospital industry and Blue Cross. When it was clear that the legislation would indeed pass, these reluctant parties gave up their autonomy to join a coalition process that would at least accommodate their interests rather than leave them totally excluded.

It appears that these parties fared better than "accommodation". That Blue Cross maintained a substantial discount, exerted key control over allowable "exceptions" expenditures, and essentially inherited the authorship of an all payer system based on its contract attests to the influence it yielded in the process. Likewise, the hospital industry successfully warded off strict controls and was able to negotiate protection from the harmful effects of the inevitable declines in utilization. All "cost push" elements (inflation) were correctly seen as beyond the hospital's reach in terms of controllability. Furthermore, areas of political (and economic) importance to maintaining physician and patient demand were left either uncontrolled (in the case of capital) or sufficiently lenient to be acceptable to the industry.

This case illustrates a common political process in the health care field, and perhaps is generalizable to any

industry with very powerful interest group participation, particularly professional groups.[5] Legislation is initiated by the business community, consumers, or government reformers and is fervently opposed by the providers. Then, to gain provider cooperation, substantial concessions are made. In theory, tightening up the provisions will occur later, once the program is implemented. However, just as the industry was able to shape the initial drafting of the law, it continues to dominate the amendment process, making it difficult to implement tighter amendments. Thus, though initiated by interest groups with sufficient political and economic interests, in the drafting stage the industry managed to "capture" the regulatory process.

The consensus building process has two very important positive effects on the policies. First, by including many of the affected parties in the negotiations, the law is responsive to a wide range of issues--for example, the equity between parties, the shared responsibility in the provision of uncompensated care and the equity among the industry members (the hospitals.) With a more limited

5. Examples of this in the health policy field include the adoption of the Medicare program and the End Stage Renal Disease policy.

participation, fewer agenda issues would have been raised, and of those, fewer would have been addressed. During previous Blue Cross-hospital contract negotiations broad issues consistently went by the wayside as the bargaining focused on items of direct pecuniary interest. In the coalition process, these "other" issues were of prime concern to other parties, and hence could not be overlooked. The broader membership also ensures stability as most of the influential parties that stall implementation or disrupt the operation of the payment system are included in the negotiation process.

The second important implication of the negotiated style of policy-making is that it results in more informed policies. In this case, the regulators were well aware of the organizational responses to the regulations because the industry was party to their development. This model is very different from many regulatory situations where the organizations affected are treated as black boxes. Because both industry representatives and the major payers were involved in the design of all provisions, the law is unusually sophisticated in its specifications. Industry reactions were anticipated and provisions were included to ward off many undesired consequences. Because the incentives appear to have been responded to, I think it is

safe to assert that this involvement resulted not only in a more sophisticated law but a more effective one. The process was important for both the means (the law) and the ends (cost containment.)

Inherent in this consensual process, however, was compromise in the ability of the law to constrain the growth in costs. Thus, although the architects of the system were well aware that several of the policies were overly generous, it was assumed that the first few years would essentially "buy" the behavior changes. The payers were willing to take short term losses for longer term gains, reflecting the incrementalism that may be integral to the process of policy change. In subsequent amendments, tighter controls were gained over several areas but many important sources of hospital inflation remain uncontrolled. The inability to secure reductions in areas of real cost increases (increases in intensity) points to the persistent drawback of negotiated solutions and the difficulty of retrieving concessions once granted. Hence, we saw that the regulated solution fared no better than existing national trends. I would conclude that while improving the range of issues addressed and the implementation of policies adopted, the consensus building process diluted the regulatory impact of the law to the point where its provisions were no more

effective than existing environmental forces (including, albeit, the national implementation of DRGs.)

The dynamics of the policy-making process revealed the political nature of the agenda setting, options contemplated, and solutions reached. As interest groups alignments shifted and the relative power of those groups changed, so too did the political agenda that could be successfully negotiated. The give and take inherent in any political process is best illustrated in the case of the hospitals' acceptance of a pool for uncompensated care. An issue that had previously divided its membership, the pool could be pursued by the state policy-makers once the industry pulled out its support for a Medicare waiver, thereby "owing" the Coalition members a favor. This major policy achievement took both a realignment of relative power and the realization of an opportunity.

The political nature is also revealed in areas that did not receive policy-makers' attention. Several issues are still too politically sensitive to get on the agenda of hospital payment policy-- either they are too divisive for the coalition membership, they split hospital unanimity, or they are too close to the hospitals' financial lifeline to get any hospital support. That the law continues to rely on supply side regulations to control demand is one of the

critical issues that eventually will have to be addressed. It is in these areas that one could expect to see future policy development.

As a final note, it is worth asking whether the model of hospital cost containment incorporated into Chapter 372 was the right model but inadequately tight, or whether it represents the wrong model altogether. The results of comparisons with the U.S. show that other strategies achieve the same objectives. Regional comparisons showed that MA fared better than this peer group. However, it should be pointed out that the peer group included several per diem regulatory systems and one DRG payment system. Both of these "solutions" include incentives to increase volume which undermine their ability to contain total costs. In this sense, Chapter 372 represents a preferred solution. In addition, as discussed in the next section, Chapter 372 gives the hospitals enormous flexibility in achieving cost reductions. Thus, while analysts may not be overly impressed with the results of this law, they should realize that as an approach to hospital cost containment, the law has several advantages. It is during the political process of negotiating with the industry that the provisions got less effective. These same political barriers will confront any group's efforts to contain hospitals costs.

6.2 Comparing Chapter 372 with DRGs

As a competing regulatory approach, Diagnostic Related Groups (DRGs) based payments warrant comparison with a budget based system like Chapter 372. This section compares Chapter 372 with the recently implemented Medicare payment system to see if the latter system is more effective in controlling costs. Despite differences in design, the two systems are quite similar in many of their incentives. In comparing these differences and applying the results of C.372, we can hypothesize about the overall effectiveness of DRGs in containing costs.

In October 1983, Medicare implemented a new prospective payment system (PPS) for paying hospitals for care delivered to its beneficiaries. Eliminating its "reasonable cost" methodology for inpatient care, Medicare adopted a system which pays flat rates per type of discharge. DRGs were designed to categorize cases which are both medically meaningful and have similar patterns of resource utilization. Patients are assigned to one of 467 DRG categories based on primary and secondary diagnoses, surgical procedure, age, sex, and discharge status. Fixed rates, prospectively determined, are paid to the hospital

upon discharge. Hospitals which can treat a patient for costs below the fixed reimbursement rate will make a profit, while hospitals with costs higher than the DRG rate will be at risk for any additional costs.[1]

First, a few more details about the DRG payment system to allow us to draw out the differences between the programs. For each DRG there are urban and rural rates, and nine regional rates, as well as a national rate, for a total of 20 prices per DRG. These prices adjust for inter-regional differences in costs. Over the next three years, regional and national rates will have varying weights in the determination of an individual hospital's rate. Initially, hospital historical costs will prevail (75%) with the remaining 25% being calculated on the regional DRG rate. Over time, the blending of the rates shifts away from the individual and regional rates and towards a national rate, until finally totally nationally determined rates will be paid throughout the country. Although the second stage of the blending of the rates should have been completed, hospital pressure succeeded in extending the period for another year, so that the current payment rate is 50%

1. This payment scheme assumes that differences in efficiency explain all the variations in costs of treating patients within a DRG. Most notable in its omissions is the lack of a severity index to refine the classifications within a DRG.

hospital specific and 50% a federal component (of which three quarters is a regional rate and one quarter is a national rate.) Other adjustments are made for indirect medical education costs, wage levels, and outlier cases (cases with exceptionally high costs--essentially politically defined to meet budgetary constraints--this year capped at 6% of total discharges.) Thus far, the DRG rates do not include payments for capital or for outpatient services, which are paid on a "reasonable cost basis."

Given what we have learned about the design of effective programs, it is useful to compare this seemingly very different approach with Chapter 372. As Table 6.1 shows, the systems (considering C.372 with all of its most recent amendments) have numerous similarities. By capping payment levels, both encourage cost reductions through decreases in services delivered, improved efficiencies, the adoption of cost-saving technology, and shortened length of stay. Unfortunately, both systems encourage the manipulation of coding to improve reimbursements, unbundling of services to unregulated settings, and can result in declines in quality of care. Essentially, by setting a cap both systems encourage upgrading of labelling and downgrading of the quality of services delivered. With all of these similarities, how different are the systems and do they matter?

Table 6.1 Comparison of the Incentives Under Chapter 372 and
Diagnosis-Related Group Based Payments

<u>Measure</u>	<u>DRG</u>	<u>C.372</u>
Encourages Admissions	yes	no
Encourages Decreases in LOS	yes	yes
Encourages efficiency	yes	yes
Encourages declines in Quality of care	maybe	maybe
Encourages manipulation of coding ("creep")	yes	yes
Encourages cost-saving technology	yes	yes
Discourages cost increasing technology	no	no
Decrease in Access for Poor	no- NJ	no
Encourages hospitals to specialize	yes	yes
Encourages hospitals to unbundle services to non-hospital setting	yes	yes
Encourages discrimination against expensive cases	yes	yes
Encourages vertical integration	yes	yes
Encourages cost shifting	no- NJ yes- Medicare	no

I would argue that the systems are fundamentally different, both in concept and in the details that make a significant difference in their likelihood of success, incentives, and social goals. The most important difference between these two payment systems is that lack of comprehensive control that the Medicare program offers. The program regulates only the payments of one payer, and it addresses only inpatient costs. This limited approach will only encourage cost shifting onto other payers. Furthermore, due to varying payer mixes and abilities to cost shift, hospitals will be subject to very different constraints, leading to inequities between institutions and varying abilities to provide services to the uninsured population. Results from New Jersey indicate that hospitals with higher percent of unregulated payments had higher increases in costs and improved financial conditions.[2]

It should be remembered here that a DRG based payment system need not cover only one payer or only inpatient services. New Jersey is a case in point, where an all payer system has been implemented, though it does not cover outpatient services. By covering all payers, and including

2. See Michael D. Rosko and Robert W. Broyles, "Unintended Consequences of Prospective Payment: Erosion of Hospital Financial Position and Cost Shifting", Health Care Management Review, Summer 1984, pp.35-43.

the costs of uncompensated care into its DRG rates, the NJ system has avoided two of the limitations presented by the Medicare program.

An important difference between any per case system (like DRGs) and a total budget cap (as in Chapter 372) is that per case payments encourage admissions, readmissions, and the splitting up of potentially combined procedures. Unlike the Massachusetts system, which pays only marginal costs for volume increases, thereby rewarding declines in utilization and discouraging "throughput", a DRG based system encourages admissions to augment revenues due to declining utilization of hospital days. As occupancy rates fall, the costs per day increase since the high fixed costs are spread over fewer patient days. A concerted effort to increase admissions (through improved marketing strategies primarily) will bring costs per day down to within range of the DRG price. Work by Wennberg et al has shown that there is considerable discretion in hospitalization rates by DRG. Losses in revenues due to any underpayments by DRG could be offset by increases in admission rates that would be well within acceptable medical practice norms. Increased admissions would undermine the objective to control of total

hospital payments.[3]

The two systems also differ in the rate of technology acquisition assumed in the payments. Chapter 372, due to its negotiated nature, is quite liberal in its payments for changes in technology--it passes through all major moveable equipment expenses, automatically grants an additional 1% annual increase due to changes in technology, and uses a hospital specific composite inflation index to annually increase allowable total costs. Conversely, DRGs allowed only a 1% annual increase in intensity per year (when historically increases ranged between 4-5% per year) and uses a flat inflation allowance, this year set at zero percent. The recalibrations between DRGs will be done every four years, thereby encouraging delays in purchasing until the rates include the costs of the technology. Thus, the Medicare system may delay technology acquisition since it allows hospitals fewer opportunities to recover these costs. Furthermore, the charge structure used to construct the DRGs incorporates a high degree of cross-subsidization between procedures so that high priced procedures now are

3. John E. Wennberg, et al, "Will Payment Based on Diagnosis-Related Groups Control Hospital Costs?", New England Journal of Medicine, Vol.311, (1984), pages 295-300.

underpriced relative to their true costs.[4]

At a more conceptual level, DRGs represent a kind of micro-regulation: that is, control of unit specific payments rather than a more general total budget constraint. The target of the regulatory action, discharges, focuses attention on individual patients and may result in more discriminatory practices. Specifically, the DRG system encourages administrators to examine the relative costs of every patient within a DRG and the institution's costs to treat specific DRG's. While such an analysis may lead to productive regionalization and specialization of service provision, the distinctions between this beneficial outcome and skimming may become blurred.[5] That is, once administrators have determined the breakeven points on individual DRGs or money losing DRGs, there may be an incentive to discriminate against certain patients. Discrimination could also occur against certain types of cases or hospitals if there were unequal costs to DRG price ratios across different areas. Equally problematic would be

4. Gerald Anderson and Earl Steinberg, "To Buy or Not To Buy: Technology Acquisition Under Prospective Payment," New England Journal of Medicine, Vol. 311 (July 19, 1984), pages 182-185.

5. Robert Stern, et al, "Institutional Responses to Prospective Payment Based on Diagnosis-Related Groups", New England Journal of Medicine, Vol. 312 (March 7, 1985), pages 621-627.

marketing strategies which actively recruit patients who will represent profitable admissions. Note that the distinction is one of degree only--both payment systems could encourage skimming and dumping. The difference is that one system explicitly points to individual cases as profitable or not, whereas a global budget system is at least two levels removed from the patient (departmental and total costs being the other two levels.) Obviously, most administrators will (hopefully) remember that DRGs are averages, and that some cross-subsidization is required both within categories and between categories, to maintain any semblance of access.[6]

This micro-regulation incorporated in the DRG system may present one positive benefit to hospital administrators. By linking payments to the specific cases, the payment system may present a better management tool that more closely links objectives to hospital products. A DRG payment system will support administrators' initiatives to provide case specific cost information and physician

6. Of equal concern, is the enhancement of revenues by increasing the number of surgical procedures. One would trust the medical profession's ethics to ensure that only medically appropriate care is delivered. This is similar to the problem raised by unequal cost to charge ratios across all DRGs. That is, if cost to charge ratios are uneven between DRGs, discrimination against certain type of cases may occur.

profiles by which management can assess hospital performance. Conversely, Chapter 372, with its broad policy goals, provides no ammunition for administrators to insist on improved cost information by which to improve decision-making and planning.

While it is important to point out the political choices made by the architects of the Medicare payment system, it should be remembered that the objectives of a state system may be quite different due to the political process that will invariably shape the final design. State governments may differ significantly from the non-interventionist role currently being taken by the federal government. Minimizing state budgetary liabilities will have to be balanced with many states' concerns for equity and universalism.[7] For example, Medicare administrators have decided not to consider the costs of bad debt and free care in making payments to hospitals. Instead, their sole concern is with its payouts for its beneficiaries. Such a narrow view is an unlikely outcome of a state political process, where the plight of inner city hospitals, the size of the Medicaid budget, and the differential between charge payers and cost based payers

7. Bruce Vladeck, "Diagnostic Related Group-Based Hospital Payment: The Real Issues", Bulletin of the New York Academy of Medicine, Vol. 62, No. 1, (Jan.-Feb. 1986), pp.46-54.

will force a broader interpretation of governmental responsibility. Thus, a DRG based system could include other social goals, such as the costs of uncompensated care included in the DRG rates in the New Jersey system.

6.2.1 Results of the DRG Payment System

Unfortunately, few detailed results of the New Jersey all payer DRG system have been published to confirm hypothesized reactions. At the industry wide level, studies indicate that costs were controlled more effectively than under the previous regulatory (and less comprehensive) scheme.[8] This study also concluded that the DRG system resulted in increased admissions and reduced length of stay, both predicted outcomes. Another study showed that while costs per admission slowed somewhat under the DRG payment system, these savings were more than offset by increases in admissions.[9] More recent data indicate a moderating trend in admissions--for 1983-84, admissions actually decreased

8. Michael D. Rosko and Robert W. Broyles, "The Impact of the New Jersey All Payer DRG System," Inquiry, Vol. 23 (Spring 1986), pages 67-75.

9. William Hsiao, et al, "Lessons of the New Jersey DRG payment System", Health Affairs, Vol. 5, No. 2 (Summer 1986).

for the first time.[10] Declines in length of stay have been reported in both studies, with more recent data indicating greater declines than in previous years. Whether this trend towards declining utilization reflects the successful operation of the PROs screening appropriate admissions, or national trends in utilization is unclear. I suspect that it indicates an effective quality of care program (the PRO program), since the economic incentives to increase admissions with declining utilization are strong.

Studies of the New Jersey system (prior to regulating all payers) also showed that the degree to which DRGs contained costs was closely related to the payer mix of the institutions. At institutions with higher percentages of revenues controlled by DRGs (inner city hospitals) costs were more likely to be controlled than shifted.[11] Given differing abilities to generate revenues from non-regulated payers, this result has important implications for "payer poor" institutions. It also indicates the fundamental problem in controlling total costs with a payer specific program, such as the Medicare DRG system.

10. Harvey Sapolsky et al, "Managing Hospitals Under DRGs," forthcoming.

11. Michael D. Rosko, "Differential Impact of Prospective Payment on Hospitals Located in Different Catchment Areas," Journal of Health and Human Resources Administration, Summer 1984, pp.61-83.

Initial results of Medicare's first year of operation under its prospective payment system indicate successful control of utilization and costs to the Medicare program. Both admissions and average length of stay were down significantly from previous years (-1.7% and -9.0%, respectively) indicating an acceleration of previous downward trends.[12] Concurrent with utilization and cost experiences, hospital profit margins increased sharply, with surplus revenues doubling in the first year of implementation.[13] Although undoubtedly medical practice patterns were beginning to change, I would be reluctant to attribute this improved financial condition solely to shifts in physician behavior. More likely, especially in the short run, are the options to cost shift onto other payers and "upcode" (that is, relabel DRGs to more expensive DRGs to maximize reimbursement, known as "DRG creep.") In fact, the Rand Corporation found that between 1981-84 the case mix intensity of Medicare patients increased 8.4%, of which a third was due to "prospective payment system induced"

12. Stuart Guterman and Allen Dobson, "Impact of the Medicare Prospective Payment System for Hospitals," Health Care Financing Review, Vol. 7, No. 3 (Spring 1986), pp.97-117.

13. Ibid., page 104

changes in coding.[14]

Perhaps as important as industry-wide performance is the effect that Medicare prospective payment will have on various subgroups of hospitals. One researcher modelled these effects on various subgroups of hospitals to project winners and losers both in the transition years and under the final rates. The results were that as hospitals move towards the final rates, the shortfalls, while less widespread than in the transition years, are significantly larger. Overall, in the first year, 57% of the hospitals will experience shortfalls totalling \$1.2 billion, or on average 4.9% of their costs. By year four, the shortfalls will affect only 47% of the hospitals, but will amount to over \$3.3 billion, representing over 15% of operating costs. Conversely, winners under the final system have larger bonuses than the current regional/hospital rates allow, going from \$444 million in year one (7% of total costs) to over \$2.5 billion by year four (over 25% above costs.)[15] The impacts of the shortfalls and bonuses are

14. G.M. Carter and Paul B. Ginsburg, The Medicare Case Mix Index Increase: Medical Practice Changes, Aging, and DRG Creep (Santa Monica: The Rand Corporation, 1985) as cited in Guterman and Dobson, op.cit., p.106.

15. Michael L. Vaida, "DataWatch: The Financial Impact of Prospective Payment on Hospitals," Health Affairs, Vol. 3, No. 1 (Spring 1984), pp.112-119.

not evenly spread out over the industry. Losers include: larger hospitals, church and investor owned hospitals, teaching facilities, and hospitals located in New England, and in the Northeast Central, and Pacific census divisions. These hospitals tend to have longer lengths of stay, be high users of ICU/CCU and ancillary services, and experience lower occupancies.[16]

These results point out a couple of interesting implications for national policy. First, in a budget neutral payment system, the uniform payments result in inter-regional transfers of Medicare dollars. These transfers make little economic or intuitive sense but certainly could be understood in political terms. Hospital care for the most part is a local commodity with local markets. Providing hospitals with incentives to improve efficiency is desirable but these inter-regional transfers go well beyond this productive outcome. Second, the system clearly lacks a severity of illness measure that would improve equity between hospitals. Researchers have consistently found that DRGs explain only a modest proportion of the variability in resource use per case and that the explained proportion increases significantly when

16. Ibid., pp. 116-117.

severity is accounted for.[17]

While the Massachusetts system also uses case mix adjusted discharges to measure volume, the payment system is more sensitive to differences in severity of patients between facilities. This is because C.372 incorporates, both as an advantage and as a disadvantage, the total historical costs of a facility and is open to adjustment for "exceptional costs." For the facility which has traditionally had both a more intensive and more severe case mix, the costs of treating its patients are included in its base year costs. For the more recently specialized facility, where the costs may not be included in the base, an exception can be applied for to fold these new costs into the budget. In both cases, a single measure is not relied upon to determine facility costs.

In summary, though the systems have numerous similarities, they are quite different in their design and in the incentives they set up for critical variables like volume, cost shifting, and access. Cost shifting and reduced access can be corrected in a state all payer system but will remain intractable problems in the piecemeal approach taken by Medicare. In addition, the payment

17. See, for example, Susan D. Horn, et al, "Severity of Illness within DRGs: Impact on Prospective Payment," American Journal of Public Health, Vol. 75, No. 10, October 1985.

systems treat increases in volume very differently. Chapter 372, with its marginal cost payments for volume increases and budget approach, ends up encouraging volume decreases and being neutral to any increases in volume. Conversely, a DRG system encourages volume increases because payments are directly proportional to admissions. The degree to which volume will be encouraged by a DRG system I think remains to be seen. Because the financial incentives to increase admissions are powerful, utilization review will have to be very effective in order to combat them. Even still, discretion in medical decisions is sufficiently broad to accomodate supplier induced demand that will counter efforts to standardize and reduce hospitalizations.[18]

6.3 Speculations About Physician and Hospital Behavior

Though different in form, both payment systems indicate the changing nature of physician-administration relations within the hospital. Unlike decision-making of the past era of hospital administration, restrictive payment policies, be they DRG based or total budgets, have forced hospitals to

18. John Wennberg and Philip Caper, "Letter to the Editor," New England Journal of Medicine 311:1261 (Nov.8, 1984.)

integrate previously disparate areas of control-- the board, the administration, and the medical staff. The limitations have forced institutions to begin to make tradeoffs between competing interests and to orchestrate their activities with unified strategic objectives in mind. Choices about equipment purchases, expansion, and service development are very different now under a restrained payment system. More careful assessments of new technology, for example, will have to address long and short run financial implications for the hospital, as well as survive a cost benefit analysis.

For physicians, this more integrated decision-making reduces their autonomy. Physicians can no longer see the hospital as a place to house their patients and pool expensive resources. Instead, they must share in the responsibility of running a financially viable institution.[19] Not only do physicians have to be involved in decisions about capital and equipment investments, but a case based method of payment has included them in developing definitions of acceptable standards of care for their peers.

Seen as an agent of change, DRGs (used either directly

19. John Iglehart, "New Jersey's Experiment with DRG-Based Hospital Reimbursement," New England of Medicine 307:1655-1660.

or as a measure of volume) have also forced hospitals to improve their data bases. The integration of financial, clinical, and cost information is critical to being able to identify specific cost containment strategies. Hospitals increasingly see themselves as delivering product lines, for which cost and revenue information is central to their financial performance. The development of a new data base has also brought improvements in cost accounting, medical records, billing offices, and materials management, with these areas increasing in importance as they share in the responsibility for control of costs.[20]

A case based information system has also provided ammunition to administrators to examine and address aberrant practice patterns. Physician developed standards of care, with national and regional averages by DRG, are forcing hospitals to identify not only which DRGs are the potential sources of problems, but which, if any, physicians are responsible for the outliers. Information on costs, both routine and ancillary, by DRG by admitting physician will be a powerful tool in outlining acceptable treatment regimes. Although not true yet, I would not be surprised if hospitals began to use practice patterns as a way of selecting

20. Bruce Vladeck, "Medicare Hospital Payment By Diagnosis-Related Groups", Annals of Internal Medicine, Vol. 100, No. 4 (1984), pages 576-591.

physician staff and extending admitting privileges. Physicians, whose practice patterns would clearly improve the hospital's financial position, will be encouraged over physicians with more expensive practices. And, as mentioned previously, hospitals may begin to specialize in procedures and services offered. Hopefully, this increased attention on efficiency and efficacy will not encourage only marginal admissions whose prices exceed their actual costs. Of course, hospitals are multi-goal institutions and the financial incentives included in the DRG payments may not be sufficient to change some behavior. Just as Chapter 372 did not dramatically reduce ancillary services or change expenditures for education, bad debt and free care, DRGs are but one set of incentives influencing hospital behavior and hopefully will not have a detrimental effect on quality or access to services.

The changes in the payment system are also likely to change the medical staff organization from a self policing mechanism into a management and analytic tool.[21] More of the medical staff directorship will be full time, paid positions to ensure that the practice patterns of the institution are in concert with the payment policies. The increased emphasis on these positions will also reflect the

21. Bruce Vladeck, op. cit., page 585.

hospitals increasing interest in developing "product lines" of services. The chief of the service has responsibility to ensure that medicine practiced is both of acceptable quality and meets the financial requirements of the institution.

Finally, the constraints imposed by the financial systems, combined with declining utilization, will encourage hospitals to vertically integrate with a variety of other providers. Previously discussed were the incentives of any payment system to divert activities to other unregulated settings, such as the incentive to unbundle laboratory work. Opportunities to integrate "feeder" institutions (such as outpatient clinics and surgi-centers) will improve a hospital's ability to increase market share by essentially increasing service area. Post care possibilities (nursing homes and home health care, for example) will also be a focus of attention as hospitals try to increase their ability to discharge patients "on time" (that is, within the cost/discharge constraint imposed by the DRG price). In addition, hospitals are vying for contracts with health maintenance and preferred provider organizations. These contracts expand market share by establishing physician-patient referral networks that may eventually result in direct service delivery in exchange for discounted rates.

The regulated systems incorporated in C.372 or in DRGs

have several limitations imposed on their ability to control costs. First and foremost, consumers of hospital care have little interest in controlling costs if this implies reduced quality of care and reduced access to services. Combined with a general inability to evaluate the medical efficacy or necessity of services, their physicians act as purchasing agents. So, unlike other industries where control is more direct, physicians actually control the demand for hospital services, even though regulatory efforts focus on hospitals. Furthermore, most hospital administrators do not have mechanisms to directly control the physicians on their staff, making compliance with cost containment regulations difficult. Little wonder that the administrators sought watered down provisions for any regulations that would require changes in physician practices.

Physicians, in turn, have malpractice concerns and quality of care issues that inhibit any inclinations to contain costs. Furthermore, their professionalism discourages peer review. Combined with the variability in illness, widely varying practice styles make consensus about "acceptable" medical care difficult to develop, let alone enforce. Therefore, more than in other industries, the product is poorly defined and has widely varying practice patterns that make regulations more difficult to define. Combined with a professionalism that to date has been very

effective at avoiding direct regulation, the control of hospital costs will be difficult to achieve.

6.4 Future Issues

Whether future payment policies approximate Chapter 372 or an expanded version of the Medicare DRG system, four issues will be in the midst of the policy debate: a) payments for physician services, b) payments for capital, c) the relative roles of competition and regulation, and d) the social goals to be met by the payment policies. The first considers how physicians will be paid in the future. Currently, there are few instances where the incentives of the physicians parallel the incentives of hospital cost containment strategies-- HMO's and for-profit hospitals being two cases which come to mind. As discussed in Chapter Four, the conflicting incentives presented by the two different payment systems (the fee for service system encouraging utilization conflicting with cost containment efforts of administrators) undermine the ability of regulatory strategies to control costs. If physicians are seen as the primary source for controlling demand, incentives which shift demand are critical to an improved ability to control costs. The trick will be to induce the

correct incentives into the system without increasing the risks of underprovision of services. Capitation plans and national health insurance are two solutions, but neither can be considered politically realistic at this point.

One hopeful possibility is that physicians will increase their responsibility for practicing clinically effective and cost efficient care. For example, the hospital's staff could develop standards of care by which it reviewed all discharges. All physicians would be subject to this peer review, and major deviations and consistently high users of resources would warrant closer examination. Of course, this type of oversight and "cookbook medicine" would be strongly resisted in most institutions.[22] Why could this possibly work? I think that hospitals' financial conditions are sufficiently in jeopardy that they ought to be able to mobilize their medical staffs to cooperate. With increased pressure from all sides, hospitals have little choice but to integrate physicians into their management structure and increase their line responsibility for costs. Furthermore, it is actually the least medically intrusive option. In this option, physicians have an opportunity to design, monitor, and modify practice patterns without

22. David W. Young, "Medical Practice, Case Mix, and Cost Containment," Journal of the American Medical Association Vol. 247 (February 12, 1982), pages 801-805.

regulatory intervention as proposed in physician DRGs. Physicians may find themselves without either political power or support if they choose to ignore the hospital's impending financial realities.

The second issue is the treatment of capital. Although capital constitutes only about seven percent of a hospital's budget, when combined with the operating costs generated by these projects they are a source of real concern. Currently, capital is a highly politically sensitive area that has evaded regulation and agreement about acceptable restrictions. Proposals for folding capital into the DRG rates have considered a flat percentage increase, a blending of hospital-specific and industry average percentages, and separate treatments for equipment and buildings and fixed equipment. The proposals differ in their effects on the hospitals and hence represent a political choice between outcomes. A flat percent add on (the AHA proposed 7%) to the DRG rate would benefit the teaching hospitals and the inner city hospitals, both of which tend to have lower than average capital costs relative to their operating costs.[23] The cyclical nature of capital spending implies that hospital specific payments (equal to the hospital's

23. Gerald Anderson and Paul b. Ginsburg, "Prospective Capital Payments to Hospitals", Health Affairs Vol. 2, No. 3 (Fall 1983), pages 52-63.

actual capital costs) will tend to overpay facilities which have just constructed and will underpay those about to renovate or build. However, a hospital specific rate will integrate case mix and differential labor costs easily so there is a tension between using hospital specific and industry wide measures.[24] A flat percentage could be eased in with a blending similar to the national/regional/hospital proportions constructed for the DRG rate. (The AHA proposal included a 15 year blending period.) Another policy decision has to consider if all of the existing capital is to be figured into the rates, thereby assuming that all of it warrants replacement. The government wants the industry to retire a portion of its assets and therefore only wants to consider a percentage of all the capital. The most important decision of all will not, however, be over the exact formula used, but rather over how the amounts will be rolled forward in subsequent years.[25]

The third policy area is the balance between regulation and competition. Clearly, the Reagan administration believes the DRG payment system will increase competition

24. Ibid., page 60.

25. Thus, DHHS is considering a more liberal 8% add on but with tight controls over how this will be rolled forward.

between facilities and between staff physicians for patients and resources, in turn bringing costs down. Actually, the pressures to contain costs extend well beyond the worries of the federal government and the looming deficit. The hospital sector is being broadsided with efforts to hold the line on spending-- including major groups and insurers shopping for the best prices for hospital care, HMOs and PPOs affiliating with hospitals in exchange for discounted prices, alternative providers chipping away at the central role hospitals play in the delivery system, and declining utilization forcing an examination of which facilities will survive the eighties.

With all of this increased pressure to control costs, it is worth asking ourselves if regulation continues to be required. No doubt competition can spawn cost effective medicine. And efforts on the part of payers and self insured large groups to reduce the problem of moral hazard will surely mitigate the need for regulatory intervention. The problem here is that these solutions treat hospital care as a traditional economic good. They ignore the fact that hospital care differs in fundamental ways from most goods and that price is only one of several concerns that consumers will have. Efforts to deregulate ignore the important positive contributions regulation can provide including equitable allocations within the market, minimum

standards for quality, and protection of the availability of services. Thus, while the need for regulation to control costs may be declining, its role in realizing other social goals actually increases as attention focuses on cost control.

This brings me to my last point about the future of payment policies. Although Medicare appears to have forgotten its role in broader social policy (or relinquished it to the states), state payment systems can achieve a variety of social goals through their design and specific policies. Among these would be the:

- adequate and equitable financing of uncompensated care
- adequate financing of teaching costs
- the monitoring of the design of utilization programs, thereby providing consumers with adequate protection against discriminatory and/or unfair practices
- adequate financing to ensure availability of hospital services in geographically isolated and rural areas, and adequate reserve capacity at all facilities
- the impacts of hospital payment policies on non-hospital sectors of the health care industry.

Thus, in addition to the promotion of payment systems that encourage cost effective, quality services, states can establish policies to meet other social goals. These goals

will, in turn, shape the specific policies such as the balance between hospital specific and industry averages, the treatment of outliers, peer comparisons to be made, the use of formulae and individual hospital review, and the degree of cross-subsidization between hospitals.[26] While appearing "technical", these policies will reflect the political choices made about the social objectives that will be met by payment systems. It is clear that state regulatory systems can be designed to achieve these social goals while at the same time successfully controlling hospital costs. Thus, while individual private and public efforts may in fact be able to realize the same cost reductions, regulated solutions are needed to promote goals that are not in any payer's narrow self interest. At a time, when other efforts, both private and public, are shirking their broader responsibilities, it is incumbent on policy-makers to ensure that equitable and reasonable policies are held in place.

26. S.Berki, "The Design of Case-Based Hospital Payment Systems", Medical Care, Vol. 21, No. 1, pages 1-13.

Appendix A. Volume Adjustment Calculation

The following example outlines the volume adjustment calculations for routine inpatient care. For this adjustment, the corridor is 0% upside and 7% downside, with marginal cost allowances of 50% of full unit costs. If ALOS is decreasing, admissions are used as the measure for changes in volume; if ALOS is increasing, days are used.

Example

1981

Inpatient Routine Costs	=	\$10,000
Units of Service days	=	100
Admissions	=	10
ALOS	=	10
Cost per day	=	100
Cost per admission	=	1,000

1982

Inflation	=	12%
-----------	---	-----

Situation (1) ALOS increase:

ALOS	=	11
Patient Days	=	110
Admissions	=	10

Calculation of Volume adjustment:

change in		base year		inflation		marginal		Volume
patient days	x	costs per	x		x	cost	=	Adjustment
		patient day				allowance		
10	x	\$100	x	1.12	x	.5	=	\$560

In this example, the 1982 MAC would be adjusted by \$560 for changes in the inpatient routine volume.

1982

Situation (2) ALOS decrease:

ALOS	=	9
Patient Days	=	108
Admissions	=	12

Calculation of Volume Adjustment with ALOS decrease:

change in admissions	x	Base Year Costs Per Admission	x	inflation	x	marginal cost allowance	= Volume Adjustment
2	x	1000	x	1.12	x	.5	= 1120

In this case, because ALOS has decrease, admissions are used in calculating the volume adjustment of an additional \$1120 to the MAC.

APPENDIX B.

BED SIZE AND TEACHING STATUS (TEACHING/NON-TEACHING)
 teaching=t non-teaching=nt

HOSPNAME	BEDS5	TEACHING
	322	NT
ADDISON GILBERT HOSPITAL	138	NT
ANNA JAGUES HOSPITAL	168	NT
ATHOL HOSPITAL	81	NT
BAYSTATE MEDICAL CENTER	1109	T
BERKSHIRE MEDICAL CENTER	401	T
BETH ISRAEL HOSPITAL	508	T
BEVERLY HOSPITAL	249	NT
BON SECOURS HOSPITAL	359	NT
BRIGHAM & WOMENS HOSPITAL	809	T
BROCKTON HOSPITAL	330	T
BURBANK HOSPITAL	246	NT
CAPE COD HOSPITAL	251	NT
CARDINAL CUSHING GEN. HOSPITAL	275	NT
CARNEY HOSPITAL	422	T
CENTRAL HOSPITAL	99	NT
CHARLTON MEMORIAL HOSPITAL	437	NT
CHILDRENS MEDICAL CENTER	339	T
CHOATE/SYMMES HOSPITAL	305	NT
CLINTON HOSPITAL	80	NT
COOLEY DICKINSON HOSPITAL	234	NT
DANA FARBER HOSPITAL	57	T
EMERSON HOSPITAL	245	NT
FAIRLAWN HOSPITAL	29200	NT
FAIRVIEW HOSPITAL	80	NT
FALMOUTH HOSPITAL	142	NT
FARREN MEMORIAL HOSPITAL	72	NT
FAULKNER HOSPITAL	259	T
FRAMINGHAM UNION HOSPITAL	361	T
FRANKLIN COUNTY PUB. HOSPITAL	182	NT
GODDARD MEMORIAL HOSPITAL	276	NT
HARRINGTON MEMORIAL HOSPITAL	132	NT
HENRY HEYWOOD HOSPITAL	167	NT
HILLCREST HOSPITAL	130	NT
HOLDEN DISTRICT HOSPITAL	82	T
HOLYOKE HOSPITAL	294	NT
HUBBARD REGIONAL HOSPITAL	82	NT
JORDAN HOSPITAL	191	NT
LAHEY CLINIC	200	T
LAWRENCE GENERAL HOSPITAL	403	NT
LAWRENCE MEMORIAL HOSPITAL	200	NT
LEOMINSTER HOSPITAL	171	NT
LEONARD MORSE HOSPITAL	275	NT
LUDLOW HOSPITAL	76	NT
LYNN HOSPITAL	332	T
MALDEN HOSPITAL	277	T
MARLBOROUGH HOSPITAL	164	NT
MARY LANE HOSPITAL	87	NT
MASS. EYE & EAR INFIRMARY	174	T
MASS. GENERAL HOSPITAL	1082	T

APPENDIX B.

BED SIZE AND TEACHING STATUS (TEACHING/NON-TEACHING)
 teaching=t non-teaching=nt

HOSPNAME	BEDS5	TEACHING
MASS. OSTEOPATHIC HOSPITAL	80	NT
MELROSE-WAKEFIELD HOSPITAL	281	NT
MEMORIAL HOSPITAL OF WORCESTER	375	T
MERCY HOSPITAL	322	NT
MILFORD-WHITINGSVILLE HOSPITAL	225	NT
MILTON HOSPITAL	161	NT
MORTON HOSPITAL	221	NT
MOUNT AUBURN HOSPITAL	337	T
NANTUCKET COTTAGE HOSPITAL	55	NT
NASHOBA COMMUNITY HOSPITAL	102	NT
NEW ENGLAND BAPTIST HOSPITAL	245	T
NEW ENGLAND DEACONESS HOSPITAL	489	T
NEW ENGLAND MEDICAL CENTER	446	T
NEW ENGLAND MEMORIAL HOSPITAL	319	NT
NEWTON-WELLESLEY HOSPITAL	382	T
NOBLE HOSPITAL	162	NT
NORTH ADAMS HOSPITAL	194	NT
PARKER HILL HOSPITAL (HCHP)	93	NT
PARKWOOD HOSPITAL	100	NT
PROVIDENCE HOSPITAL	273	NT
SALEM HOSPITAL	428	NT
SANCTA MARIA HOSPITAL	150	NT
SOMERVILLE HOSPITAL	138	NT
SOUTH SHORE HOSPITAL	324	NT
ST. ANNES OF F.R. HOSPITAL	182	NT
ST. ELIZABETHS HOSPITAL	415	T
ST. JOHNS OF LOWELL	254	NT
ST. JOSEPHS OF LOWELL	255	NT
ST. LUKES OF MIDDLEBOROUGH	66	NT
ST. LUKES OF NEW BEDFORD	478	NT
ST. MARGARETS HOSPITAL	201	T
ST. VINCENTS HOSPITAL	618	T
STURDY MEMORIAL HOSPITAL	236	NT
TOBEY HOSPITAL	98	N
UNION OF LYNN HOSPITAL	210	N
UNIVERSITY HOSPITAL	379	T
WALTHAM HOSPITAL	335	T
WHIDDEN MEMORIAL HOSPITAL	173	NT
WINCHESTER HOSPITAL	259	NT
WING MEMORIAL HOSPITAL	80	NT
WINTHROP HOSPITAL	110	NT
WORCESTER HAHNEMANN	295	T

Appendix C

Methodological Notes on Data Sources and Data Verification

All Massachusetts cost, revenue, and utilization information was abstracted from the Rate Setting Commission cost reports, the RSC 401 and the RSC 403. The RSC 401 was filed by all hospitals in FY79 and FY80, and by the municipal hospitals in FY82. Data items from the different cost reports have been adjusted where necessary for to make them consistent. Payer mix information was abstracted from the RSC 404 for 1983 and 1984 because it is generally more accurate and complete than its RSC 403 counterpart (Schedule V.) Ancillary service and outpatient volume data were abstracted from both the cost reports (the RSC 401 for 1980 data) and the Blue Cross MAC Report. A few hospitals did not file Schedule XXIV (RSC 403) and their Financial Statements were used to fill in missing data. Table Appendix.1 lists all data items used in the analyses and their sources.

All data from the RSC 401's and 403's have undergone both within schedule checks (to ensure that subtotals and any other calculations, such as percentages and allocations, are correct) and between schedule checks (to ensure that data items are accurately transferred from one schedule to

another.) Data items were also cross-validated by (a) calculating the rates of change between years and verifying any unusual changes, and (b) calculating the data item as a percent to a total (for example, capital costs as a percent of total patient care costs.) This second type of edit check helped to flag consistently misreported aggregations of cost or revenues. Several data problems with the RSC 403 were uncovered during the cleaning phase of this project. A following section details specific problems encountered and how I resolved them.

It should be noted that all data contained in the computerized data files at the Commission are as filed and unaudited. While more accurate numbers are available for audited years, the RSC has only recently completed the 1982 audits. Therefore, mixing audited and unaudited data would have been required but was strongly advised against. This was because audited data would have included consistently lower costs (reflecting disallowed costs) and may have yielded higher volumes, depending on whether hospitals had claimed artificially low volumes to reap the benefits of the volume incentives. Due to the lack of consistency between audited and unaudited data, all data used was unaudited. I understand that the results of these analyses may vary somewhat with results obtained from audited data.

Although the Massachusetts Rate Setting Commission has specific filing requirements, numerous hospitals fail to completely and correctly fill out the reports. Differences in reporting practices and incorrect reporting necessitated considerable data cleaning efforts for certain fields. The list below summarizes the particular problems certain fields presented and how I resolved them. Omitted variables met with no special problems beyond the usual missing values, and keypunch and abstraction errors. All of these errors were corrected using the submitted hospital reports.

Total Expenses

Problem hospital data were cross-checked with the financial statements filed annually at the Rate Setting Commission.

Net Patient Service Revenue

Problem hospital data were cross-checked with the financial statements filed annually at the Rate Setting Commission.

Nonoperating Revenues

Problem hospital data were cross-checked with the financial statements filed annually at the Rate Setting Commission. Item not available in the RSC401 (1979 and 1980), since it is aggregated with other operating revenues.

Other Operating Revenues

Problem hospital data were cross-checked with the financial statements filed annually at the Rate Setting Commission. Item not available in the RSC401 (1979 and 1980), since it is aggregated with non-operating revenues.

Inpatient and Outpatient Costs

Some hospitals fail to break out inpatient from outpatient costs, especially for outpatient routine costs. One missing values invalidates all four more refined breakdowns

of costs--inpatient routine costs, inpatient ancillary costs, outpatient routine costs, and outpatient ancillary costs. This is because the missing costs have been misallocated into one of the other reporting categories. In such cases, the four breakdowns of costs were entered as missing data and these hospitals were excluded from the studies using these categories.

Routine and Ancillary Costs

See above description on Inpatient/Outpatient Costs.

Total Teaching Costs

Total teaching costs include the sum of RN and LPN education, postgraduate medical education, and teaching costs. These areas were summed because hospitals were not consistent in distinguishing between postgraduate medical education (the costs of administering a teaching program, including stipends) and teaching costs (the costs of supervising and teaching the interns and residents.)

Capital Costs

Numerous hospitals had very large changes in capital expenditures indicating the operationalization of Determination of Need projects (for increases) or the final payment of long term debt (for large decreases.) All large changes were verified using the RSC 403 cost reports, the MAC reports (Schedule E.O), and a listing of approved Blue Cross exceptions for DON projects.

Salaries and Wages

Salaries and wages were used to measure the costs of labor, including the salaries of staff physicians. Review of the full time equivalent data revealed that it was highly unreliable, with personnel reported for departments with no departmental costs and vice versa, departmental costs but no FTE's reported for the service.

Payer Mix

Payer mix information in the RSC401 and 403 is of poor quality for making distinctions between charge payers, including charge pay, HMO, self pay, and other. Hospitals routinely misaggregate a variety of charge paying categories into "charge pay" and

"other". Aggregations up into "public" and "private" are fairly reliable since the problems usually arise in the distinctions of "charge pay." Any hospitals with problems in the breakdowns of Medicare, Medicaid, and Blue Cross are excluded from analyses using public/private payer mix data.

Day Surgery Minutes

Data from the RSC 401 and 403 were poor due in part to the relative inattention to this program prior to HA-29 and its incentives. For example, many hospitals did not report day surgery minutes, even though it was known that these programs were growing rapidly. These hospitals must have been counting the minutes in the regular surgery department. Therefore the MAC Report (Schedule D1.1) was used for 1981-1984. Data for 1980 was pulled from the RSC 401. Some hospitals were excluded because the units of measure had changed from visits to minutes, and conversion ratios were unknown.

Discharges

A handful of hospitals do not report discharges. These were estimated using admissions.

Outpatient Service Statistics

In the early years (1979-81) data for outpatient service statistics were unreliable. Several hospitals reported all outpatient volume statistics under the emergency room, failing to break out outpatient clinic and day surgery visits. In addition, many hospitals converted units of measurement for day surgery activity. Due to the poor quality of the data, studies using RSC401 and 403 data were abandoned. Volume statistics were taken from the Blue Cross MAC Report. Because this report is used for calculating volume adjustments by department, the volume statistics are broken down and tend to be more reliable (consistent units of measurement, for example.)

Ancillary Volume Statistics

Ancillary volume statistics required careful examination before use. Hospitals often converted units of measurement during the seven year period (for example, from measuring radiology volume in films to a more

standardized unit like relative value units, or measuring from laboratory volume in "tests" to standardized CAP workload units.) Because conversion ratios were unknown (and simple ratios were not consistent across hospitals), these direct measures of ancillary volume were abandoned. Instead, ancillary volume was approximated using cost information, aggregated across all ancillary departments.

Appendix C. Data Items Used in the Analyses and Their Sources

<u>Data Element</u>	<u>403 Reference</u>	<u>401 Reference</u>
Total expenses excluding non-patient including capital	XVII, L.25, c.2 + IX, L.1+2+3, c.12	VI, L.34, c.2 + VII, L.30, c.3
Direct Costs (no capital)		
Total Patient Care Costs	II, L.93, c.3	V, L.25+..68, c.11
Total PCC and overhead	II, L.94, c.3	VI, L.34, c.2 + VII, L.30, c.3
Total PCC and overhead and nonpatient	II, L.100, c.3	VI, L.34+35, c.2
Total Inpatient Costs (excluding capital, including ancillary)	XVII, L.14, c.2	VI, L.1+33, c.3
Total Outpatient Costs (excluding capital, including ancillary)	XVII, L.24, c.2	VI, L.1 + 33, c.13
Total Ancillary Costs (excluding capital)	XVII, L.25, c.4	VI, L.33, c.2
Inpatient Ancillary Costs (excluding capital)	XVII, L.14, c.4	VI, L.33, c.3
Outpatient Ancillary Costs (excluding capital)	XVII, L.24, c.4	VI, L.33, c.13
Total Routine Costs (excluding capital)	XVII, L.25, c.3	VI, L.1, c.2
Inpatient Routine	XVII, L.14, c.3	VI, L.1, c.3
Outpatient Routine	XVII, L.24, c.3	VI, L.1, c.13

<u>Data Item</u>	<u>403 Reference</u>	<u>401 Reference</u>
Total Capital Costs after Reclassifications and Recoveries	IX, L.1+2+3, c.12	VII, L.30, c.3
Buildings & Fixed after R&R	IX, L.1, c.12	-
Leases, Rentals, & Amorti- zation after R&R	IX, L.2, c.12	-
Long Term Interest after R&R	IX, L.3, c.12	-
Major Movable Equipment including Overhead	IX, L.94, c.7	V, L.69, c.7
Major Movable Equipment - nonpatient	IX, L.98, c.7	V. L.70+71+72, c.7
Total Teaching Costs	II, L.26+27+29, c.3	V, L.14+16+17, c.11
RN & LPN Education Costs	LL, L.26, c.3	V, L.14, c.11
Medical Staff Teaching Costs	II, L.27, c.3	V, L.16, c.11
Post-Graduate Medical Education	II, L.29, c.3	V, L.17, c.11
Labor Costs		
Salaries and Wages, no overhead	IX, L.93, c.2	V, L.69, c.2 - (V, L.3+...24, c.2)
Utilization		
Beds	III, L.14, c.4	IV, L.19, c.2
Total Patient Days	III, L.14, c.6	IV, L.19, c.5
Discharges	III, L.14, c.12	IV, L.19, c.8

<u>Data Item</u>	<u>403 Reference</u>	<u>401 Reference</u>
Total Operating Expenses	XXIV, L.18, c.2	V, L.76, c.11
Net Patient Service Revenue	XXIV, L.10, c.2	II, L.49, c.2
Other Operating Revenue	XXIV, L.11, c.2	-
Nonoperating Revenue	XXIV, L.24, c.2	-
Sum of Other Operating and Nonoperating Revenue		II, L.50, c.2
Total GPSR	V, L.23, c.2	II, L.34, c.2
Blue Cross Charges	V, L.23, c.3	IIA, L.34, c.3+4
Medicare	V, L.23, c.4	IIA, L.34, c.7+8
Medicaid	V, L.23, c.5	IIA, L.34, c.5+6
Industrial Accident	V, L.23, c.6	IIA, L.34, c.9+10
Commercial	V, L.23, c.7	IIA, L.34, c.11+12
Self Pay	V, L.23, c.8	IIA, L.34, c.13+14
HMO	V, L.23, c.9	-
Other	V, L.23, c.10	IIA, L.34, c.17+18

Data Item

Blue Cross MAC Report Reference

Day Surgery Minutes

Appendix D1.1, Line 14

Bad Debt and Free Care
Costs, Net of
Recoveries

MAC Summary Form, Appendix D, #28
and Blue Cross Settlement Data

APPENDIX D. T TEST RESULTS

Table 1. Pre-Post Comparison of Rates of Increase in Total Costs

	mean difference	standard error	standard deviation	Level of significance
Post-Pre	-.0622	.0282	.2618	.0304
Annual Rates of Increase				
1979-80	.0338	.0089	.0826	.0003
1980-81	.1324	.0816	.7568	.1084
1981-82	.0727	.0057	.0527	.0001
1982-83	.0252	.0070	.0653	.0006
1983-84	.0160	.0053	.0496	.0036
1984-85	.0111	.0050	.0462	.0285

Table 2. Pre-Post Comparison of Rates of Increase in Costs
Excluding Capital

	mean	s.d.	Level of significance
Post-Pre	-.0447	.0426	.0001
Differences in the Rates of Change (indicating significant point of inflection)			
1979-80 and 1980-81	.0189	.0872	.1166
1980-81 and 1981-82	.0089	.0694	.3494
1981-82 and 1982-83	-.0492	.0676	.0001
1982-83 and 1983-84	-.0046	.0588	.5657
1983-84 and 1984-85	-.0081	.0501	.2412

Table 3. Pre-Post Comparisons of Changes in Per Capita Costs

	mean	standard error	standard deviation	level of significance
Pre-Post Difference	-0.0695	0.0281	0.2611	0.0155
Annual Differences				
1979-80	0.0419	0.0089	0.0832	0.0001
1980-81	0.1290	0.0813	0.7546	0.1164
1981-82	0.0743	0.0056	0.0527	0.0001
1982-83	0.0221	0.0070	0.0651	0.0022
1983-84	0.0161	0.0053	0.0496	0.0033
1984-85	-0.0017	0.0049	0.0456	0.7243

Table 4. Pre-Post Comparisons of Changes in Costs Per Day

	mean	standard error	standard deviation	level of significance
Pre-Post Difference	0.0125	0.0069	0.0646	0.0746
Annual Difference				
1979-80	0.0183	0.0089	0.0834	0.0443
1980-81	0.0728	0.0146	0.1358	0.0001
1981-82	0.0795	0.0079	0.0736	0.0001
1982-83	0.0482	0.0063	0.0591	0.0001
1983-84	0.0577	0.0058	0.0546	0.0001
1984-85	0.1025	0.0074	0.0692	0.0001

Table 5. Pre-Post Comparisons in Costs Per Discharge and
Costs Per Case Mix Adjusted Discharge

	mean	standard error	standard deviation	level of significance
Pre-Post Difference	-.0346	.0176	.1317	.0540

Annual Differences

1979-80	0.0317	0.0183	0.1371	0.0885
1980-81	0.1097	0.0430	0.3222	0.0137
1981-82	0.0683	0.0118	0.0889	0.0001
1982-83	0.0196	0.0095	0.0716	0.0446
1983-84	0.0282	0.0083	0.0622	0.0013
1984-85	0.0579	0.0110	0.0830	0.0001

Case Mix Adjusted Discharges

Pre-Post Difference	-.0671	.0159	.1286	.0001
---------------------	--------	-------	-------	-------

Annual Differences

1980-81	0.1051	0.0300	0.2424	0.0009
1981-82	0.0466	0.0093	0.0750	0.0001
1982-83	0.0029	0.0081	0.0659	0.7197
1983-84	0.0146	0.0101	0.0821	0.1548

Table 6. Pre-Post Comparison of Massachusetts with U.S. and Northeast Rates of Change in Total Costs, Costs Per Capita, Costs Per Day, and Costs Per Discharge

	MA : NORTHEAST	MA : U.S.
Changes in Total Costs	$t = \frac{-.0622 - (.0101)}{.2619 / 85} = -2.545^*$	$t = \frac{-.0622 - (-.0338)}{.2619 / 85} = -1.00$
Changes in Costs Per Capita	$t = \frac{-.0696 - (-.0487)}{.2611 / 85} = -.739$	$t = \frac{-.0696 - (-.0177)}{.2611 / 85} = -1.83$
Changes in Costs Per Day	$t = \frac{.0126 - (.0358)}{.0647 / 85} = -3.31^*$	$t = \frac{-.0126 - (.0178)}{.0647 / 85} = -.743$
Changes in Costs Per Discharge	$t = \frac{-.0346 - (-.0195)}{.1317 / 55} = -3.05^*$	$t = \frac{-.0347 - (.0176)}{.1317 / 85} = -.96$

* T Statistic is significant at the .05 level.

Table 7. Pre-Post Comparisons in Patient Days, Discharges and ALOS

	mean	standard error	standard deviation	level of significance
Patient Days				
Pre-Post Difference	-.0588	.0127	.1183	.0001
Annual Differences				
1979-80	0.0166	0.0057	0.0530	0.0045
1980-81	0.0249	0.0315	0.2922	0.4304
1981-82	-0.0021	0.0086	0.0802	0.8082
1982-83	-0.0193	0.0086	0.0803	0.0278
1983-84	-0.0376	0.0061	0.0569	0.0001
1984-85	-0.0800	0.0064	0.0601	0.0001
Discharges				
Pre-Post Difference	-.0244	.0139	.1043	.0846
Annual Differences				
1979-80	0.0146	0.0103	0.0778	0.1659
1980-81	0.0170	0.0257	0.1929	0.5100
1981-82	0.0110	0.0112	0.0839	0.3310
1982-83	0.0128	0.0116	0.0873	0.2751
1983-84	-0.0099	0.0087	0.0655	0.2600
1984-85	-0.0336	0.0166	0.1244	0.0478
Average Length of Stay				
Pre-Post Difference	-.0351	.0085	.0635	.0001
1979-80	0.0146	0.0087	0.0657	0.1002
1980-81	0.0115	0.0137	0.1029	0.4061
1981-82	0.0059	0.0089	0.0667	0.5043
1982-83	-0.0251	0.0076	0.0570	0.0017
1983-84	-0.0191	0.0078	0.0586	0.0178
1984-85	-0.0289	0.0093	0.0701	0.0032

Table 8. Pre-Post Comparison of Massachusetts, Northeast, and U.S. Rates of Change in Discharges, Patient Days, and Average Length of Stay

	MA : NORTHEAST	MA : U.S.
Changes in Discharges	$t = \frac{-.0249 - (-.0015)}{.1043 / 55} = -1.66$	$t = \frac{-.0249 - (-.0394)}{.1043 / 55} = -1.03$
Changes in Patient Days	$t = \frac{-.0589 - (-.0247)}{.1183 / 85} = -2.66^*$	$t = \frac{-.0589 - (-.0484)}{.1183 / 85} = -.818$
Changes in ALOS	$t = \frac{-.0351 - (-.0227)}{.0635 / 55} = -1.45$	$t = \frac{-.0351 - (-.0223)}{.0635 / 55} = -1.49$

* T Statistic is significant at the .05 level.

Table 9. Pre-Post Comparison in the Rates of Change in Inpatient Costs as a Percent of Total Costs

	mean	standard error	standard deviation	level of significance
Pre-Post Difference	-.0023	.0023	.0186	.3148
Annual Differences				
1979-80	-0.0167	0.0028	0.0223	0.0001
1980-81	-0.0158	0.0049	0.0382	0.0019
1981-82	0.0024	0.0050	0.0398	0.6367
1982-83	-0.0013	0.0030	0.0237	0.6695
1983-84	-0.0097	0.0031	0.0247	0.0031
1984-85	-0.0264	0.0035	0.0280	0.0001

Table 10. Inpatient Routine Costs as a Proportion of Total Inpatient Costs

Pre-Post Difference -.0612 s.d.= .0392 $Pr > |T| = .0001$

Table 11. Pre-Post Comparison of Changes in Per Capita Day Surgery Visits

Pre-Post Difference= .0032 s.d.=.0104 $Pr > |T| = .1187$

Table 12. Pre-Post Comparisons in Changes in Outpatient Costs
As a Percent of Total Costs

	mean	standard error	standard deviation	level of significance
Pre-Post Difference	-.0049	.0091	.0715	.5967

Annual Differences

1979-80	0.0792	0.0132	0.1032	0.0001
1980-81	0.0718	0.0181	0.1414	0.0002
1981-82	0.0078	0.0119	0.0936	0.5137
1982-83	0.0056	0.0100	0.0785	0.5780
1983-84	0.0421	0.0116	0.0908	0.0006
1984-85	0.0966	0.0150	0.1179	0.0001

Table 13. Pre-Post Comparisons in Changes in Ancillary Costs
as a Percent of Total Costs

Pre-Post Difference	.0060	.0086	.0655	.4842
---------------------	-------	-------	-------	-------

Annual Differences

1979-80	0.0239	0.0113	0.0867	0.0396
1980-81	-0.0053	0.0119	0.0913	0.6601
1981-82	-0.0128	0.0110	0.0843	0.2497
1982-83	0.0063	0.0100	0.0761	0.5282
1983-84	0.0064	0.0072	0.0552	0.3812
1984-85	0.0112	0.0115	0.0877	0.3338

Inpatient Ancillary Costs as a Percent of Total Ancillary Costs

Pre-Post Difference= -.0456 s.d.= .0762 Pr T = .0038

Table 13. Continued.

Outpatient Ancillary Costs as A Proportion of
Total Ancillary Costs

	mean	standard error	level of significance
1979-80	.0930	.2436	.0281
1980-81	.0071	.1938	.8275
1981-82	-.0157	.1341	.4869
1982-83	-.0029	.0330	.6032
1983-84	.0183	.0339	.0026
1984-85	-.0516	.2313	.1892

Table 14. Changes in Unintended Effects of C.372
Pre-Post Comparisons

	mean	standard error	level of significance
Salaries and Wages	.0262	.0315	.011
Equipment	.0069	.043	.0001
Overhead (excluding capital)	-.0610	.0592	.0001
Education	-.0017	.019	.7524

Appendix E. Correlations Results

Hypothesis	1979- 80	1980- 81	1981- 82	1982- 83	1983- 84	1984- 85
<u>Changes in Total Costs:</u>						
Increases in costs are inversely related to profits	-.017	.149	.053	.033	-.003	.054
Increases in costs are positively related to ancillary costs per day	.506*		-.019	-.088	.081	-.265#
Increases in costs are positively related to ancillary costs per discharge	.284**		.189#	.083	.162	-.206
Increases in costs are positively related to capital expenditures	.605*	.094	.189#	.530*	.462*	.398*
Increases in costs are positively related to equipment expenditures		.141	.256**	.233**	.249**	-.016
Increases in costs are positively related to changes in length of stay	-.053		-.201#		.176#	.177
Increases in costs are positively related to increases in uncompensated care	-.048	.273#	.046	-.069	.096	
Increases in costs are positively related to increases in inpatient costs	.509*		-.045	-.050	.148	-.203

KEY:

- * Significant at the .01 Level
- ** Significant at the .05 Level
- # Significant at the .10 Level

Appendix E. Continued

Hypothesis	1979- 80	1980- 81	1981- 82	1982- 83	1983- 84	1984- 85
<u>Changes in Uncompensated Care (BDFC)</u>						
Increases in BDFC are inversely related to profit margins	.017	-.086	.100	.018	.020	
Increases in BDFC are inversely related to private sector share of revenues		-.075	.053	.197#	.107	
<u>Changes in Profits (as a Percent of Total Revenues)</u>						
Hospital size is positively related to profits	.002	.056	-.047	-.109	-.102	-.117
Profits are positively related to ancillary costs			.003	-.054	-.004	-.008
Profits are positively related to capital investments	-.185	.138	.000	.062	.057	.040
Profits are positively related to equipment purchases		.086	.127	.019	.014	.010
Profits are positively related to increases in private sector payer mix		-.075	.053	-.014	.107	
Profits are positively related to increases in non-operating revenues			-.129	.023	-.312**	-.011
Profits are positively related to increases in other operating revenues			-.109	.365	-.109	.035

KEY:

- * Significant at the .01 Level
- ** Significant at the .05 Level
- # Significant at the .10 Level

Appendix E. Continued

Hypothesis	1979- 80	1980- 81	1981- 82	1982- 83	1983- 84	1984- 85
Profits are inversely related to education expenses			.100	.171	-.009	.254
Profits are inversely related to the proportion of inpatient costs	-.028		.003	.000	.034	-.018
Profits are inversely related to increases in length of stay	-.028		.055	.042	.131	.129
Profits are positively related to profit margins in 1982 (pre-C.372)				.035	.094	.078
Profits are inversely related to ancillary costs per day	.073		.016	.007	-.081	.113
Profits are inversely related to ancillary costs per discharge	.130		-.038	.114	.061	.112
Profits are positively related to prior year's profits	.164	.090	.052	.035	.197#	.536#

KEY:

- * Significant at the .01 Level
- ** Significant at the .05 Level
- # Significant at the .10 Level