

Chapter 1: INTRODUCTION

The force that through the green fuse drives the flower drives my green age;
Dylan Thomas¹

A. Overview

In our secular society, human health is one of the most important values. This helps explain why the US spends 14% of its GDP on health care. The majority of Americans are vitally concerned about their health. To the extent that people believe that health care institutions and finance mechanisms affect their personal health, they are vitally concerned with these institutions and mechanisms. Many of us are also concerned about the provision and finance of health care for our fellow Americans, and we believe that the health care system reflects the values and merit of our society. Unfortunately, many Americans have no health insurance and must either pay for medical care out of their pockets or go without. This occurs despite federal and state expenditure of hundreds of billions of dollars to provide health care.

The interest in affordable quality health care was one of the forces driving the rapid expansion of Health Maintenance Organizations (HMOs). Initially, they were seen as a way to reign in spiraling costs and yet deliver quality care. HMOs have succeeded at enrolling a large fraction of the American population, and overall quality of care for HMO enrollees is good. But HMO actions, most of them motivated by the imperative to control costs, have created conflict with providers, consumers and government policy makers. Today, questions about the efficacy and efficiency of HMOs abound. Economic issues include:

- How effective are HMOs in controlling overall costs?
- What sorts of oversight should they have and who should carry it out?
- What lessons can policy analysts and policy makers draw from the HMO phenomenon in order to craft sensible health care policies?

This thesis presents a statistical analysis designed to help address these issues. This chapter begins by giving a brief history of HMOs and presenting the conceptual framework of the analysis. The chapter shows how the conceptual framework motivates and justifies the overall design of the statistical analysis presented in this Ph.D. Thesis. The last section of the chapter presents a brief analysis of the policy framework of this study.

¹ "The Force That Through the Green Fuse Drives the Flower" 1934 Poem.

B. Brief History of HMOs

A health maintenance organization is defined as “an organization that combines the provision of health insurance and the delivery of health care services.” (Given 1994)

Early HMOs and HMO-like institutions developed in the 1930s. They may have had some intellectual roots in the workers’ cooperative movement of 19th century England. Early prototypes were found in California, Washington, Oregon, Oklahoma and Washington DC. A certain degree of frontier self reliance still prevailed in the Pacific states and Oklahoma, and that spirit may have contributed to the success of these “cooperative health plans.” Employees of the Federal Home Loan Bank organized the Group Health Association (GHA) of Washington DC in 1937.² The large social programs instituted under the New Deal must have influenced the organizers, but the GHA was also a non-profit cooperative, not a government program.

The movement grew slowly and fitfully in its first few decades. From the 1940s into the 1970s, the majority of HMO enrollees belonged to the Kaiser system. Industrialist Henry J. Kaiser, working with Dr. Sidney Garfield, offered prepaid health care to the workers who built the Grand Coulee Dam in 1938. During World War II Henry Kaiser became a dominant entrepreneur in the shipbuilding industry, and his health plan enrolled over 100,000 people in California and Oregon. After the war, Kaiser and Garfield marketed the Kaiser Permanente Medical Care Program to other businesses and municipal governments in those two states. When Kaiser moved to Hawaii in 1954, building hotels and a cement plant in his “retirement”, Kaiser Permanente came with him and eventually became the 2nd largest health insurer in that state.³

One of the reasons HMOs did not grow rapidly at first was resistance from organized medicine. Leaders in the American Medical Association (AMA) and its affiliates believed that cooperative health plans would violate the integrity of medical decision-making and provide inferior care. AMA leaders also feared that these plans would lead to socialized medicine, which they whole-heartedly opposed. Physicians who challenged this orthodoxy by founding or managing a prototype HMO often were excluded from state and county medical societies. GHA physicians were denied admitting privileges by every hospital in Washington DC.⁴ State medical associations were able to persuade the legislatures of most states to outlaw cooperative health plans and/or the corporate practice of medicine. In states where such health insurance arrangements were legal, fledgling HMOs had great difficulty attracting a staff of competent and reputable doctors.⁵

However, powered by the determination of Henry Kaiser, Fiorello La Guardia and small cadres of committed managers and physicians in a few cities, the HMO movement survived

² The Social Transformation of American Medicine (STAM) pp. 302-305

³ Henry J. Kaiser: Builder in the Modern American West, by Mark S. Foster, 1989, pp.211-218, 254, 266.

⁴ In 1943, the US Supreme Court upheld the conviction of the AMA on antitrust violations because of its actions against GHA. But efforts to discourage and discredit HMO physicians continued in following years. STAM p 305

⁵ STAM pp. 302-306, Foster, op cit, pp. 219-223.

medical resistance and a variety of attacks.⁶ In the 1960s, as the growth of health care expenditures accelerated, the movement attracted new advocates, and several small HMOs were founded. In 1970 there were 37 HMOs in 14 states with an enrollment of 3 million people. The HMO movement had achieved national significance.⁷

In the late 1960s and early 1970s political conservatives embraced the HMO concept as an alternative to socialized medicine.⁸ Paul Starr provides an insightful analysis of this development. “A remarkable change had taken place. Prepaid group practice was originally associated with the cooperative movement and dismissed as a utopian, slightly subversive idea. The conservative cost minded critics of medical care now adopted it as a more efficient form of management.”⁹

With support from a broad coalition in Congress, President Nixon secured the passage of the HMO Act of 1973. The Act enabled individual HMOs to receive endorsement (referred to as qualification) from the federal government, and it required employers to offer coverage from at least one federally qualified HMO to all employees (dual choice). However, the dual choice requirement was never enforced, and many large HMOs, including Kaiser, never sought federal qualification. The Act did facilitate growth in HMO enrollment by helping to create several successful HMOs around the country, and it legitimized the HMO concept. This statistical analysis of the years 1973 to 1978 included in this report will shed more light on the effects of the HMO Act, and the Act is discussed further in Chapter 5, section A2, Policy Implications.

For profit businesses and the stock market began to play a major role in the expansion of HMOs in the late 1970s.¹⁰ Newly formed corporations as well as established insurers, such as Prudential, sponsored HMOs in that period. Several members of the Blue Cross Blue Shield system, which was non-profit but had access to substantial bank credit, also started or partnered in new HMOs. The trend toward commercialization accelerated in the 1980s, and in 1992 for profit HMOs surpassed non-profits in enrollment. The availability of capital from the stock market and more aggressive strategies fostered by the profit motive enabled the HMO movement to continue its rapid growth. But the long-term transformation of HMOs from local health care cooperatives to large national corporations also occasioned regret and resentment.

⁶ Fiorello La Guardia, then Mayor of New York City, played a critical role in establishing the Health Insurance Plan of New York (HIP) to insure city employees in the 1940s. HIP rapidly became the country's 2nd largest HMO and maintained that position until the 1980s. STAM pp 322, 324-326

⁷ “From Movement To Industry ...” by Gruber et al, HA, Summer 1988, pp.197-208.

⁸ An early example of this trend was Governor Ronald Reagan's use of HMOs in the establishment of the Medi-Cal program, California's version of Medicaid. Although HMOs didn't change the nature of the funding, it was hoped that they would keep costs under control.

⁹ STAM pp 395-397. Prepaid group practice (PGP) was the term used to describe Kaiser and other HMOs in the 1960s. HMO was coined by Paul Ellwood and publicized by President Nixon in his February 1971 health insurance proposal.

¹⁰ The commercialization of HMOs was probably more important than the HMO Act, but these 2 developments worked together. “The conservative appropriation of liberal reform in the early seventies opened up HMOs as a field for business development.” STAM p. 428.

The HMO bust of 1987 to 1990 interrupted this aggressive growth in both enrollment and capitalization. This was a classic industry shakeout caused by too much growth and ignorant management; 76 HMOs went out of business from 1988 to the middle of 1990. However, well run HMOs continued to prosper, and overall national enrollment continued to grow, albeit at a slower rate. In the 1990s, the national industry resumed impressive growth, with total enrollment increasing from 39 million in 1992 to 79 million in 1998. Continued health care cost escalation and the re-emergence of health insurance reform as a major national issue helped the industry to double in size. In particular, many employers felt they had little choice but to convert to HMO insurance as the low cost alternative in the face of rapidly escalating health insurance premiums.

The cumulative record is remarkable. HMO enrollment exploded from 3 million in 1970 to over 80 million in 1999.¹¹ This increase equated to a 12 percent increase every single year, and national enrollment did grow every single year during this period. Figure 1-1 shows estimated national HMO enrollment from 1970 to 2000 in 5-year intervals.¹²

While national enrollment grew at a relatively steady rate, the distribution of enrollment across the states and cities of our country remained uneven. At any given time, HMOs would catch on in some metropolitan statistical areas (MSAs or simply cities), but they would attract no enrollment in many other, seemingly comparable, MSAs. The geographic dispersion of enrollment had no obvious or predictable pattern. To some extent, growth concentrated in different regions of the country during different periods. But there always were exceptions. Some MSAs in rapid growth regions would buck the trend, while some cities in other regions would grow much faster than neighboring MSAs.

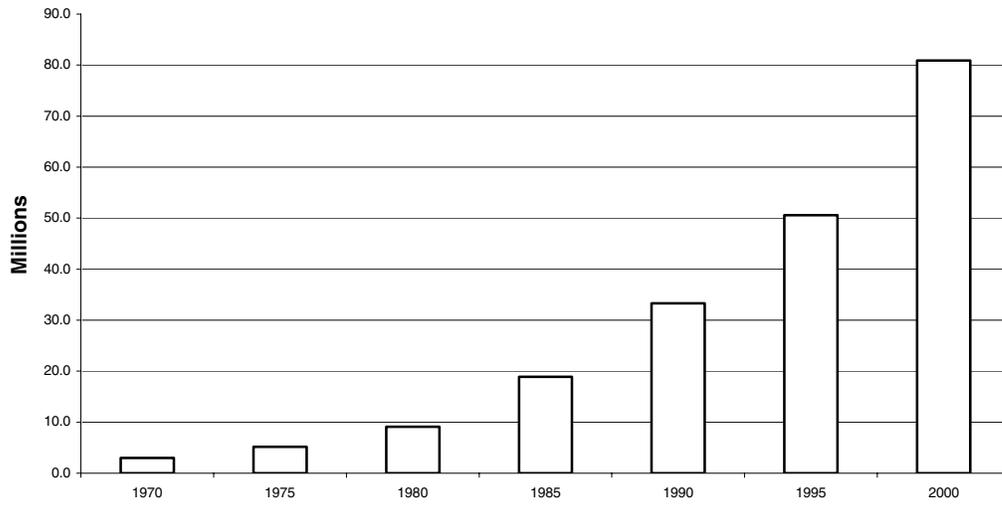
Today, HMOs provide health insurance to over 75 million Americans. They play a strong role in determining how health care is delivered and how health care dollars are distributed. In particular, HMOs have played the leading role in bringing market competition to health care (Zwanziger et al 2000). HMO enrollment has considerable effects on several aspects of the health care system (Escarce et al 2000). Frequently, HMO enrollment growth has led to substantial reductions in hospital costs and other health care costs (Baker et al 2000, Miller and Luft 2001).

The power and influence of HMOs is a consequence of their large enrollment. This study analyzes the growth of HMO enrollment to determine the causes of that growth. Determining the causes of HMO growth is helpful in determining the root causes of the various effects that stem from increased HMO enrollment.

¹¹ InterStudy Extra, Vol. 1, Issue 4 (December 2000) p.1.

¹² It is now (July 2002) clear that HMO enrollment has plateaued in the past 3 years, and many experts believe it will never surpass the 81 million recorded in 1999. Please see Chapter 5.

Figure 1-1
Growth in US HMO Enrollment



C. Diffusion Framework

The growth of the HMO industry is remarkable, but there have been other industries and economic innovations that grew rapidly during the 20th century. Further analysis of the growth of HMOs requires a conceptual framework, and a good framework can highlight the unique, as well as the commonplace, features of the HMO phenomenon. Further insights, which will spring from the statistical analysis of this study, can be placed with the framework to develop a richer and deeper analysis.

Fortunately, there is an extensive literature on the adoption, and non-adoption, of changes in social and economic behavior. This field is generally referred to as the diffusion of innovations.¹³ One researcher in this field (LA Brown 1981) has developed an overall framework that can be used to analyze the growth of any innovation or industry. Under Brown's framework (p.27), diffusion is defined by 6 elements:

- 1) A geographic area
- 2) A period of time
- 3) The item being diffused
- 4) Initial locations of use (Nodes of Origin)
- 5) New locations of use (Nodes of Destination)
- 6) Paths or mechanisms of diffusion

Brown, following Hagerstrand (1952), identifies 3 likely patterns for geographic diffusion: a) a hierarchical pattern, where innovations begin in large urban centers and spread out sequentially to medium sized urban centers, suburban areas, etc, b) a contagion pattern, where innovations move in a linear or radial fashion from the point of origin to neighboring areas to further flung areas, and c) a random pattern, where there are no strong geographic regularities.

Brown also highlights the importance of the establishment of "agencies" or organizations that are dedicated to the diffusion of the innovation. In many cases, diffusion of the innovation is not practical without the establishment of such agencies. The Internet and Internet service providers is one conspicuous example. In other cases, the agency itself may be the innovation; Brown cites fast food outlets and regional shopping centers as examples. Brown analyzes 4 factors that determine agency establishment (p.91), namely:

- A) Market potential
- B) Extent of public exposure to the innovation
- C) Characteristics of the organization controlling or coordinating agency establishment, and
- D) The role of other institutions

Concerning the dynamic pattern of diffusion, Brown, following Rogers (1962, 1995) and others, notes the ubiquity of the S-shaped curve. The S-shaped curve is frequently observed

¹³ Much of the diffusion of innovation literature focuses on the diffusion of very specific technological products and processes. Some of the subject matter and findings are of limited applicability to HMOs. Unlike many growth industries, HMOs did not arise out of any specific physical technology, but out of financial and organizational innovations applied to health care sector. The exposition in the main text relies upon diffusion research that uses a broad definition of innovation and that does apply to HMOs and other industries based primarily on organizational innovations. Full references to the works used are included in the bibliography at the end of Chapter 2.

when adoption, usage or sales are plotted against time. A period of slow initial growth is followed by a period of rapid growth, which is in turn followed by a period of slow growth and possibly a period of stable usage. As pointed out by Rogers (1995) if the cumulative number of adopters follows an S-shaped curve, then the number of new adopters follows the normal bell shaped curve.¹⁴ Rogers divides that bell curve into categories according to the z-scores, or number of standard deviations from the mean time of adoption. This classification scheme works as follows:

Time of Adoption (Standard Deviations – SDs)	Category	Approximate % of Total Users
2 or more SDs before the Mean	Innovators	2.5
From 1 to 2 SDs before the Mean	Early Adopters	13.5
From 0 to 1 SD before the Mean	Early Majority	34
From 0 to 1 SD after the Mean	Late Majority	34
More than 1 SD after the Mean	Laggards	16

In the classical diffusion paradigm, all potential users eventually adopt a meritorious innovation, and the curve levels off at 100% (Rogers 1995, fig 8-4). In this generally non-mathematical literature, the S-shaped is noted as an empirical regularity. However, this curve reflects a logistic pattern of growth, and this pattern has been formally modeled many times for many different contexts (Griliches 1957, Nelson 1968).

Brown borrows from the marketing literature and introduces the product life cycle as a way of analyzing the time path of diffusion. Following Kotler (1972), he divides the life cycle into 4 stages, introduction, growth, maturity and decline. The first 3 of these stages are related to the 3 parts of the S-shaped curve. The introductory period is characterized by slow growth, and the rapid growth period matches the steep part of the S curve. The mature stage then corresponds to the return to slow growth and possible complete flattening out of the S curve. However, the 4th stage, decline, is not normally shown as part of the S curve diagram. The decline stage reflects the reality that commercial products are frequently supplanted by new products that are technologically superior or more appealing to customers.

The product life cycle is a particularly useful concept because it can explain possible changes in the nature of growth as well as in the rate of growth. Brown (1981, 118) states, “Throughout this life cycle diffusion strategies are continually modified regardless of the character of the innovation or of the diffusion agency.” In many cases, a company or an industry will essentially market only one product. Therefore the progress of that company or industry will reflect the changing position of the product as it shifts from one stage of its life cycle to another.

Brown illustrates the uses of his framework with several case studies. One of the more interesting ones concerns the growth of the Friendly Ice Cream chain from its origin in Springfield, Massachusetts to most of the Northeast and parts of Ohio. From 1936 to 1964,

¹⁴ Rogers used cumulative number of adopters, assuming that there would not be any dis-adopters. But the same reasoning can be used for other measures of diffusion. Specifically, if increases in sales follow a normal curve over time, then sales per unit of time will follow an S-shaped curve.

the number of Friendly shops grew slowly, and expansion followed a neighborhood pattern. One reason for this was to control the transportation expenses associated with both the delivery of ice cream and movement of headquarters personnel supervising the openings. A regression analysis showed distance from headquarters in Springfield explained 32% of the variance in shop year of opening for the 1936 to 1964 period.

However, Friendly adopted a policy of aggressive expansion in 1965, and the number of shops approximately quadrupled over the next 9 years. For this period, a parallel regression analysis shows that distance from Springfield explained only 21% of the variance in shop year of opening. The regression analysis, as well as other evidence, suggested that Friendly expansion shifted from a cost minimization basis to a sales maximization basis. Equally important, the regression analysis shows that different factors show various degrees of explanatory power, depending on whether shop openings from 1936 to 1964, from 1965 to 1974, or from the entire period, 1936 to 1974, are included in the analysis. This is an example of how statistical analysis can be used to confirm and build upon descriptive analysis using Brown's framework.

The continued applicability of the product life cycle framework is illustrated by a recent report on the personal computer (PC) industry (Silicon Valley/San Jose Business Journal 2002). According to eTForecasts of Illinois, the PC market has completed the growth stage of its life cycle and reached maturity. Worldwide sales may continue to grow, but at a rate of less than 10% per year. The areas with the highest current adoption rates, Western Europe and North America, will have the slowest growth rates in upcoming years. And worldwide sales are likely to shrink during recessions, as happened in 2001. "The PC market is becoming like the car market," states the report's author.

If the PC industry, which is newer and more technological, is reaching maturity, then it is possible the HMO industry is doing the same. With a few minor adjustments, Brown's 6-element framework can be applied to HMO growth at the MSA level. Then the observed temporal and spatial patterns of growth can be used to assess where the national HMO industry, and the HMO product, stand in terms of product life cycle.

D. Application of Diffusion Framework

Brown's framework is used to help structure this study of HMO growth and of explanatory factors associated with HMO growth. This section goes through the 6 elements of innovation diffusion and delineates how they apply to this study. Then the 4 factors determining agency establishment, labeled A-D, are related to hypothesized explanations for HMO growth. The section also discusses the possible implications of study results for analysis of the product life cycle of HMOs.

The first 2 elements of the framework are geography and time. For HMOs, it is logical to study growth within metropolitan statistical areas (MSAs), since they closely correspond to the markets within which HMOs compete. For convenience, the terms "MSA" and "city" are used interchangeably in this report. The availability of data on many cities permits the application of statistical techniques, notably multiple regression and testing for statistical significance. Because of the issue of endogeneity, discussed in Chapter 3, it was decided to study HMO growth over 5 year periods. Another factor in this decision is that a 5 year period is sufficiently long to generate a materially meaningful effect, but not so long as to unnecessarily increase the risk that changes in structural relationships will contaminate the accuracy and interpretation of the results.

The 3rd element is the innovative item itself. The nature of HMOs and how it has affected their diffusion is discussed at several points in this dissertation. HMOs are defined and their history is described earlier in this chapter. The evolution of HMOs is considered in Chapter 2, Literature Review, and more detail on how their enrollment is defined and measured is provided in Chapter 3, Research Methods and Data.

Brown defines the 4th and 5th elements as the initial locations and new locations of use. Some modifications to these elements are necessary to apply them to a statistical study of HMOs. For HMOs, the extent of diffusion is best measured by number of enrolled lives per geographic area. In order to compare total HMO enrollments across cities, it is desirable to divide enrollment by total population, generating HMO market share in percentage points for each MSA. Therefore element 4 is changed from "Initial locations of use" to "Initial market share" for any given city and element 5 is changed from "New locations of use" to "End-of-period market share". With these modifications, the concept for measuring HMO growth becomes clear. Growth is determined by comparing end-of-period market share with initial market share.

The 6th element is the set of paths or mechanisms that enable the item to diffuse. In Brown's framework, these can be classified in terms of the 4 factor categories that determine agency establishment, A) market potential, B) public exposure, C) characteristics of the coordinating agency and D) the roles of other institutions. With minimal adjustment, these categories apply to the HMO industry.

There is a distinction between the establishment of new HMOs and total growth in enrollment. But, in practical terms, any factor hypothesized to influence the establishment of a 1st HMO in a city can reasonably be hypothesized to influence total growth in that city's HMO enrollment or vice versa. Brown's concept for factor C is that a central agency coordinates the

establishment of local agencies to diffuse the innovation; the characteristics of the central agency naturally influence the establishment of the local agencies.¹⁵ This can be extended to consider how the characteristics of individual HMO influence its growth in enrollment and possibly the total growth in HMO enrollment in its metropolitan area.

This study focuses on general factors A and D, namely market potential and the role of other institutions. Concerning market potential, many variables can be hypothesized to determine or influence the potential HMO enrollment for a given MSA. These include the standard economic and demographic characteristics of a city's population, such as per capita income, population density and average schooling. They can also include variables measuring the supply of health care in that city and other variables that reflect how the health care system works, for example measures of health care expenditures.

However, certain health system variables are best thought of in terms of Brown's factor D, the role of other institutions. Most prominent among these are variables reflecting the characteristics of the metropolitan area's physician population. The relationship between the HMO industry and the physician profession has always been critical to the success and evolution of the industry. As shown in section B of this chapter, active and vigorous resistance by the A.M.A. and its affiliates played a major role in preventing the growth of HMOs for much of the 20th century. Since the 1970s, the relationship between HMOs and the physician profession has been more complex, and a variety of factors influenced the decisions of individual physicians to affiliate or not to affiliate with an HMO (LD Brown 1983).

During the 1970s, new HMOs faced the challenge of attracting sufficient physicians and the right kind of physicians to become functional and grow. By the 1990s, most HMOs had contractual relationships with large number of physicians. But 1990s HMOs felt pressure to contract with virtually all physicians in their geographic areas. Additionally, specific contractual provisions varied widely depending on the metropolitan area and the specific physician group or organization under contract (Robinson 1999). Even though the specific issues changed, HMOs still needed strong business relationships with physicians. Chapter 2 provides further detail on the relationship between HMOs and the physician profession.

Several variables included in this study are hypothesized to affect relationships between HMOs and physicians and affect HMO growth. MDs per capita is a basic parameter that provides a rough indication of the over- or under-supply of physicians in each metropolitan area. Other physician variables include the percent of MDs in group practice, the percent of MDs who fell within the ages of 45 to 64, the percent of MDs who were AMA members and percent of MDs who were family physicians. Please see chapter 3 for more detail concerning these variables and the specific hypotheses related to them.

Factors B and C in LA Brown's diffusion framework are not subject to statistical testing within this study. Factor B is exposure of the public, or of decision makers and opinion leaders, to the HMO concept prior to growth in enrollment. There is no systematic data available with

¹⁵ Brown raises this specific formulation in the course of a case study of the opening of Planned Parenthood outlets under the supervision of the Planned Parenthood Federation of America. It clearly also applies to his Friendly Ice Cream case study and to an agricultural case study where a statewide organization determined distribution routes for a liquid form of cattle feed.

which to distinguish between different MSAs in terms of this factor.¹⁶ Factor C is the characteristics of individual HMOs. Data on some of the characteristics of individual HMOs, especially model type and ownership, is available. However, the collection, processing and analysis of this data have not been performed as part of this study.

This conceptual framework includes product life cycle as a common influence on the diffusion of a product, and HMOs have been around long enough to go through different life cycle stages. It is desirable to consider the possible effects of an overt or latent change in life cycle stage on HMO enrollment. In this study this is done by analyzing 2 distinct time periods, 1973-78 and 1988-93. The period of the mid 1970s is relatively early in the HMO growth curve. During this period, 19 large and medium sized cities, including Houston, Miami, Pittsburgh and Salt Lake City, saw their first HMO enrollee, and national HMO enrollment passed 5 million. On the other hand, by 1993, HMOs were operating in the 75 largest U.S. cities, and enrollment had passed 40 million. As discussed in Chapter 2, HMOs also went through numerous structural and functional changes during the 1973 to 1993 period.

Therefore the statistical analysis may reveal the effects of a change in life cycle stage between the two periods. If the causal factors for the two periods are similar, this will suggest that HMOs remained in the same stage of product life cycle, presumably a growth stage, throughout the 20-year period. If the two sets of causal factors are dissimilar, this will suggest that there may have been a change in life cycle stage, or that such a change was latent within the industry. For example, a shift from the growth stage to the maturity stage may have begun by 1993. The possibility of change in life cycle stage, and other applications of the diffusion framework to this statistical analysis of HMO growth, is discussed in Chapter 5, Conclusions.

In sum, this study seeks to provide insights into the growth of HMOs during the period from 1973 to 1993, and a framework based on the diffusion of innovations literature is used to help interpret the results. HMO growth in 75 MSAs is analyzed for two 5-year periods, 1973-78 and 1988-93. Explanatory variables are selected to reflect a number of hypotheses concerning the major influences on HMO growth, but all of the hypotheses relate to MSA market potential or to the role of other health care institutions in HMO growth. Ordinary least squares regression, with precautions taken to pre-empt endogeneity, is the statistical method. The full details on research methods and data are presented in Chapter 3.

¹⁶ In the diffusion of innovation literature, exposure to the new item is frequently measured by detailed prospective studies in which a large number of potential users are interviewed and their decision-making processes are carefully tracked (Roger 1995, 31-35, 52-63). Comparable studies have been done for small samples of HMO enrollees, but no study of this type on a national scale has been published.

E. Policy Framework

One of the primary considerations in US health policy is the cost-access paradox. Our country spends more on health care than any other nation, but 14% of the population lacks health insurance. The years 1992 to 1994 saw major efforts to resolve this paradox at both federal and state levels. A near consensus emerged that facilitating and encouraging the continued growth of HMOs would be a key element in improving our health finance system.¹⁷

The comprehensive policy initiatives of 1992 to 1994 were not implemented, but national HMO enrollment continued to grow until 1999. Much of the health care policy debate continued to focus on HMOs. But more recent policy initiatives have primarily been intended to restrict them and limit their freedom. For example, various state legislation has permitted patients to appeal HMO decisions, mandated that they offer certain benefits, or dictated the terms of their provider contracts. In 2001, legislation with similar provisions passed in the US Senate and House.¹⁸

The development, implementation and modification of policy is complex. In a very simplified model, policies are implemented to meet societal goals. However, the policy-making process must also define the appropriate scope of the policy, the details which translate a general policy into reality, which organizations will implement the policy and how long it will take for the policy to be implemented and have the desired effect. In other words, policy analysis must consider the where, how, who and when of implementation as well as the basic what and why of promoting the general welfare.

This thesis is most relevant to the policy issue of controlling costs. However, it also touches on a few other policy issues.

Controlling Costs

In the 1970s, the HMO movement became a major concern of policy analysts and policy researchers for one primary reason – the desire to control health care costs. One reason policy makers focus on controlling costs is that government programs bear a significant fraction of overall costs; increasing costs mean increased fiscal pressure on federal, state and, to some extent, local governments. Second, the percentage of Gross Domestic Product (GDP) devoted to health care has risen dramatically.

¹⁷ During this period many analysts and politicians embraced the doctrine of managed competition, associated with Alain Enthoven. The managed competition prescription relied heavily on widespread enrollment in HMOs, with government and private employers regulating HMO plans in specified ways.

Enthoven maintained that managed competition would control costs and make it possible for employers and government to provide insurance to the uninsured. Seemingly, savings from cost control could be applied to improve access to care. One analysis found that all uninsured persons could be covered with an increase of only 2 or 3% of health care expenditures. See “The Uninsured Access Gap ...” by Long and Marquis, HA, Spring II, 1994, pp.211-220.

¹⁸ New York Times (NYT) “Bill Establishing Patients’ Rights Passes in Senate”, June 30, 2001, p. A1; MSNBC.com “House Passes Patients Rights Bill”, August 2, 2001 (www.msnbc.com/news/588651.asp, may no longer be available). However, the differences between the House and Senate versions were not resolved, and no new legislation was enacted during the 2001 Congressional session.

Figure 1-2 shows the growth in health care expenditures relative to GDP from 1950 to 2000 at 10-year intervals. Early in the cold war, health care accounted for about 4% of the US total. This percentage has grown in every decade since, with the most rapid growth during the 1960s and 1980s.

Table 1-1 shows similar material in more detail, presenting GDP, rate of economic growth, health expenditures, rate of growth of health expenditures per capita and health expenditures as a percent of GDP for 1950, and from 1960 to 2000 at 5-year intervals. The story is simple and consistent, with only adjustments for inflation and population growth requiring substantive calculations. In every 5-year period from 1950 to 1995, health expenditures have grown more quickly than overall economic production. The margin of faster growth varied from .2 percent from 1950 to 1955 to 4.6 percent from 1965 to 1970. However, overall economic growth somewhat outstripped the growth of health expenditures from 1995 to 2000.

To some extent, the growth in costs can be justified by numerous new technologies and improvement in global outcomes such as life expectancy. But economists and social critics have argued that the increase in value was not commensurate to the increase in costs. In the early 1970s, the cost-access paradox became a dominant issue in the United States and Canada. Canada responded by socializing health insurance, but not the provision of care itself. The U.S. avoided comprehensive socialization and developed a variety of programs and concepts, one of which is reliance upon HMOs.

The effectiveness of HMOs in controlling costs has been the subject of a tremendous volume of research and analysis. This literature is reviewed in Chapter 2. The balance of the evidence indicates that HMOs have reduced overall health care costs through several mechanisms and substantially contributed to the cost de-escalation of the 1990s. This de-escalation has caused cost to recede as an issue in the consciousness of the public, the press, and elected officials. But costs are now increasing at a rapid rate and the issue is starting to re-emerge.

Expected increases in costs over the next several years are likely to cause businesses and government agencies to revitalize their cost-control efforts. But few measures to control costs have been consistently effective (Gold et al 1993). As controlling costs regains urgency, we may see greater advocacy for increased HMO enrollment. Or advocates may call for other institutions to employ the most effective (and most stringent) HMO cost control tools. These include requiring pre-authorization for a) hospitalizations, b) referrals to specialists c) expensive medical procedures, and d) prescription drugs. They also include restricting the network of providers available to a subscriber and reducing reimbursement rates for providers.

Other Policy Issues

Which level of government should be responsible for regulating HMOs and deciding related policy questions? Currently federal and state governments share the regulation of HMOs. This division of authority is complex, and for some issues the line between the two levels of government blurs. In developing and recommending policies, objective analysts must consider which level of government best serves the public interest in this area.

Figure 1-2
Growth in Health Expenditures
(as a % of US GDP)

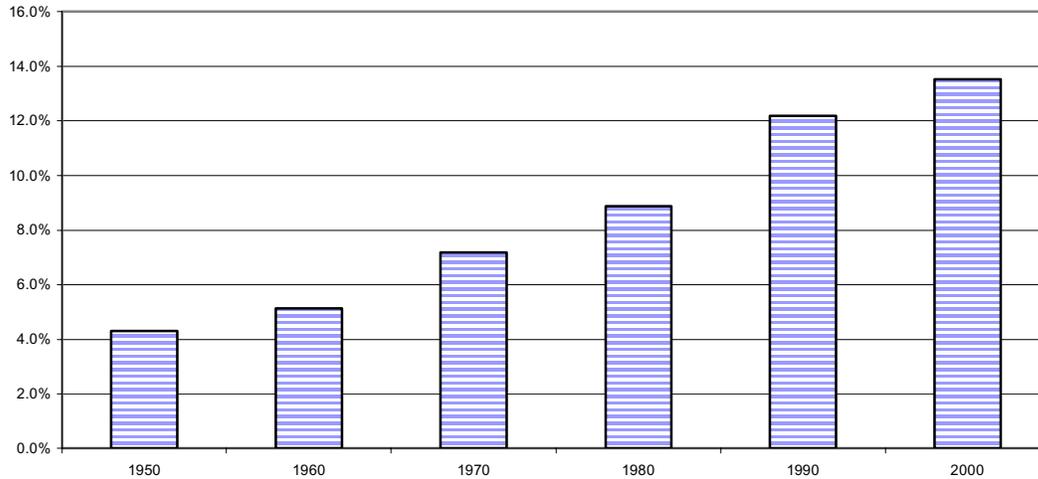


TABLE 1 - 1
US GDP AND HEALTH EXPENDITURES
At 5-Year Intervals from 1950 to 2000

Year	Nominal GDP	Real GDP	Economic Growth Rate	Health Expend	Real Health Expend	Health Expend Growth Rate	Health Expend as a % of GDP
	Bil \$	Bil 1992 \$	% ¹⁹	Bil \$	Bil 1992 \$	% per year ²⁰	%
1950	287	1,570	n.a.	12.37	67.7	n.a.	4.3
1955	407	1,962	2.8	17.75	85.6	3.0	4.4
1960	527	2,263	1.2	27.1	116.4	4.5	5.1
1965	719	2,881	3.4	41.6	166.7	5.9	5.8
1970	1,036	3,398	2.2	74.4	244.0	6.8	7.2
1975	1,631	3,874	1.6	132.9	315.7	4.2	8.1
1980	2,784	4,615	2.5	247.3	409.9	4.3	8.9
1985	4,181	5,323	2.0	422.6	538.0	4.6	10.1
1990	5,744	6,136	1.9	699.5	747.2	5.8	12.2
1995	7,270	6,762	0.9	981.4	912.8	3.0	13.5
2000	9,873 ²¹	8,367	3.6	1,299.5	1,101.3	2.9	13.2

¹⁹ Average rate of real economic growth per capita for previous 5 years

²⁰ Average rate of real growth in health care spending per capita for previous 5 years

²¹ Statistics for 2000 based on Levit et al (2002).

Powerful arguments favor standardization and the efficiency of centralized control, and many analyses employ these arguments. Since states tend to be fairly similar in a number of economic and demographic variables, there is a presumption that a consistent policy will tend to work nearly equally well across them. To some extent, the case for state control over policy depends on demonstrating sufficient material differences between states. If there are sufficient differences that influence policy outcomes, then the application of differing policies is justified. Analysts wishing to resolve this issue must either find the variables that justify divergent policies, or they must demonstrate that such variables do not exist.

To take a broader policy perspective, the study of HMO growth can contribute to better understanding of the entire health economy. HMOs have made an enormous impact and attracted a great deal of attention, more data and other evidence are available concerning their growth and evolution than there are for many other phenomena. The HMO industry serves as a valuable case study of the dissemination of an economic form in a sector where new economic forms continue to emerge and evolve.

Additionally, HMOs have played a critical role in disturbing the physician-dominated paradigm of medical care. This paradigm was embodied by the Flexner report of 1910²² and dominated health care in the US (and influenced its development in numerous other countries) for most of the 20th century. It appears that a new paradigm is emerging, but its essential features remain unclear. Although the future role of HMOs is uncertain, their emergence and their effects on the rest of the health economy hold valuable lessons for all health policy analysts.

²² Medical Education in the United States and Canada, Bulletin #4, by Abraham Flexner, discussed in STAM, pp 118-121.

F. Chapter Summary

This dissertation presents a detailed analysis of HMO enrollment over a period of 20 years. This chapter has set the stage by providing descriptive and conceptual background for the analysis. Chapter 2 reviews the extensive literature on the economics of HMOs. Chapter 3 describes how the analysis for this study was conducted. Chapter 4 presents the results of the analysis. Chapter 5 presents the meaning of the analysis for policy analysts and researchers.

The first 2 sections of this chapter, the overview and the brief history of HMOs, underline the importance of this subject. The overview describes how HMOs relate to the health policy dilemma of tremendous costs juxtaposed with widespread lack of health insurance. The history of HMOs emphasizes their scattered beginnings, their spectacular growth during the 1970s, 1980s and 1990s, and their importance today. The next 2 sections describe and apply a diffusion framework that can be used to help understand the growth of HMOs. Prior to now, no publication has used this framework to analyze the HMO industry. Finally, this chapter offers a policy framework to facilitate the use of analytic results to address policy issues. This policy framework emphasizes the role of HMOs in controlling health care costs, but the growth pattern of HMOs also relates to other policy issues.

The most important conclusions from this chapter are that HMO enrollment is an important and interesting subject of study, that the diffusion framework can be used to understand this subject and that understanding the pattern of HMO enrollment growth is likely to help in the understanding and evaluation of health policy issues.