

IMF WORKING PAPER

© 1990 International Monetary Fund

This is a working paper and the author would welcome any comments on the present text. Citations should refer to an unpublished manuscript, mentioning the author and the date of issuance by the International Monetary Fund. The views expressed are those of the author and do not necessarily represent those of the Fund.

WP/90/1

INTERNATIONAL MONETARY FUND

Western Hemisphere Department

The U.S. Health Care Industry: Performance and Issues

Prepared by Liam P. Ebrill*

Authorized for Distribution by Yusuke Horiguchi

January 1990

Abstract

This paper describes how economic behavior in the market for health care in the United States is influenced by a range of impediments to the functioning of the price mechanism which impart an upward bias to health care costs and imply efficiency losses. The paper also considers how to reform the health care sector, with particular emphasis on finding a way of resolving the dilemma posed by the tradeoff between the risk spreading afforded by insurance and establishing appropriate incentives to restrain expenditures.

JEL Classification Numbers
910

* The author is grateful to Yusuke Horiguchi, David Coe, and Steven Fries for their helpful advice and comments.

	<u>Contents</u>	<u>Page</u>
Summary		iii
I.	Introduction	1
II.	Trends in Health Care Expenditures	3
	1. Factors underlying recent growth in health care expenditures	3
	2. Prospects for medical care expenses	5
	3. U.S. federal medical programs	6
	4. International comparisons	9
	5. Value of health care	10
III.	Structure of the Health Care Market	10
	1. Health insurance: general issues	11
	2. Medical malpractice	14
	3. Imperfect competition	17
IV.	Role of Government Policy	19
	1. Exclusion of employer contributions to medical insurance and health care	19
	2. The role of Medigap policies	20
	3. Health Maintenance Organizations (HMOs)	21
	4. The Medicare prospective payment system	23
	5. The Resource Based Relative Value Scale (RBRVS)	24
V.	Concluding Observations	26
References		28

Summary

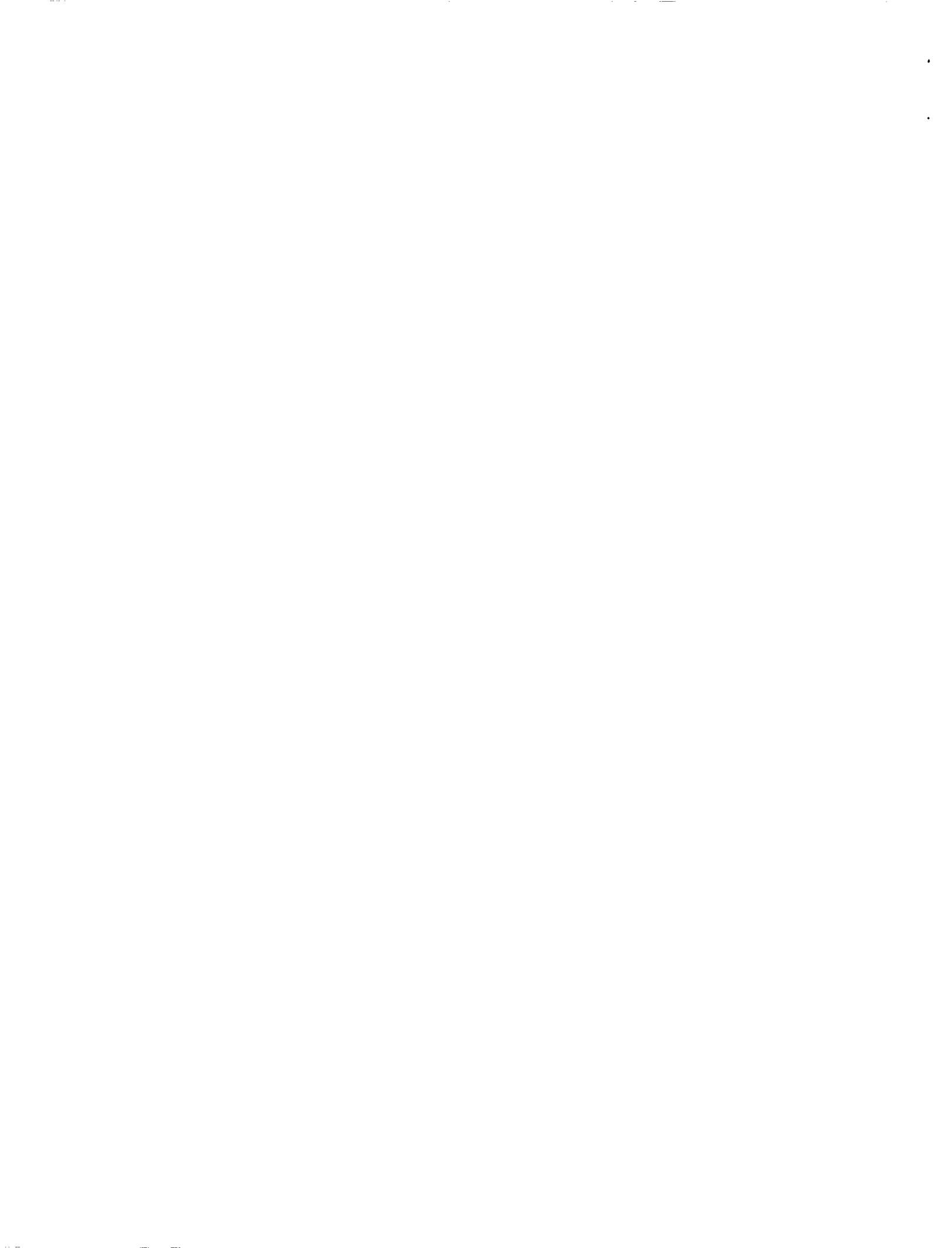
In the United States, the share of health expenditures in GNP rose from 5.9 percent in 1965 to 10.9 percent in 1986, and it is projected to increase further, to 15 percent, by 2000. Moreover, the federal share of total health expenditures is projected to increase from 29 percent in 1986 to 33 percent in 2000. Given the fiscal pressures faced by the United States, this prospect is viewed with concern.

Economic behavior in the market for the provision of health care is influenced by a range of impediments to the functioning of the price mechanism which impart an upward bias to health care costs and imply efficiency losses. These imperfections, which are analyzed in the paper, mainly arise from the existence of information asymmetries and imperfect competition in the market for health care.

The result is a second-best world with a range of points of interaction between the various actors in the health care market--consumers (patients), producers (doctors/hospitals), and insurance companies--where the potential arises for a non-optimal or inefficient outcome. Problem areas include health-insurance-induced excess purchases of health care, medical testing done to avoid malpractice suits, and a market equilibrium at which the amount of malpractice insurance purchased may be significantly greater than optimal. On this last point, an important benchmark theoretical result states that under certain conditions, the first-best solution occurs when there is a zero demand for malpractice insurance, with physicians merely choosing not to be negligent.

Reforming the health care sector raises a number of difficult issues, including, notably, finding a way to resolve the dilemma posed by the tradeoff between the opportunity for risk spreading afforded by insurance and the establishment of appropriate incentives to restrain expenditures. However, rather than alleviating the situation, some features of government policy, notably the exclusion of employer contributions to employee health care, have only served to exacerbate it.

While further progress could clearly be made in reforming the demand side of the health care market--for example, by having insurance indemnify actual illnesses rather than health care expenditures--most of the recent reform efforts have targeted the supply side of the market, where the tradeoff dilemma noted above is less severe. The paper discusses the impact of the introduction of the Medicare Prospective Payments System (PPS)--in effect a fee schedule--for hospitals; the role of Health Maintenance Organizations (HMOs) as a mechanism for internalizing some of the externalities associated with the traditional mode of health care provision; and the recent moves to change the way Medicare reimburses physicians to a system based on the "true costs" of the inputs used.



I. Introduction

Aggregate U.S. expenditures on health care have increased steadily from 5.9 percent of GNP in 1965, the year in which the U.S. Congress enacted the Medicare and Medicaid programs, to 10.9 percent in 1986. 1/ Health care expenditures accounted for by the public sector have been increasing even more rapidly, rising from 1.5 percent of GNP to 4.5 percent of GNP over the same period. 2/

The prospect is for a continued increase in the cost of health care with the growth in public sector health care expenditures continuing to exceed that in private health care expenditures. Current demographic trends indicate that as the current "baby-boom" generation ages and retires there will be a sharp increase in the elderly proportion of the population. 3/ Since the elderly are disproportionately heavy consumers of health care services, these demographic trends can be expected to put upward pressure on health care expenditures. Other factors may be even more important in this respect, including the tendency for the relative price of health care services to increase over time. Highlighting the implications of these trends for future health care costs, one projection estimates that total Medicare spending on its own is expected to exceed spending on social security by about 2005, and to exceed the total of social security and defense spending by about 2010. 3/

The underlying trends in health care expenditures have attracted the attention of policymakers. Recently, a number of sweeping proposals for reforming the health care system have been put forward and interest in the international experience with health care has heightened. 4/ Moreover, soaring health care costs have caused some major corporations to recommend radical changes in the way the health care industry operates. 5/

1/ Health Care Financing Administration (HCFA) (1987). The increase in the share of GNP devoted to health care expenditures antedates the introduction of Medicare and Medicaid--however, these new programs appear to have accelerated the trend (Pauly 1986).

2/ Pauly (1986).

3/ See Appendix XII to the Recent Economics Development paper for the 1989 Article IV consultation with the United States (SM/89/176, Supplement 2). See also Heller (1989). The demographic changes may not be smooth. The aged population is anticipated to grow rapidly until the mid-1990s, but the growth rate will then slow down temporarily as the small birth cohort of the 1930s depression retires. HCFA (1987).

3/ Antos (1989).

4/ For example, Enthoven and Kronick (1989), Relman (1989), and Davis (1989).

5/ For example, Mr. Iacocca of Chrysler Corporation has recently expressed interest in the merits of national health insurance. See New York Times, May 8, 1989.

The purpose of this paper is not to present a comprehensive proposal for the reform of the health care industry but to focus attention on those features of the health care market which distinguish it from the traditional model of competitive behavior, using the perspective thereby gained to evaluate the trends, both actual and prospective, in health care expenditures. Much attention will be devoted to the recent and proposed reforms to Medicare's payment methods. Medicare, by dint of its importance in the health care market, tends to set standards for other agents, notably private insurance companies. Moreover, concentrating on the publicly provided component of health care is particularly appropriate given the fiscal pressures facing the Federal Government.

Accordingly, this paper will not address the issue of choosing between direct government and market provision of health care other than to note that, to the extent one is concerned with whether resources are being allocated efficiently, the issue may not be so much the choice between public or private provision, but rather whether the appropriate pricing mechanisms/incentives are in place. Neither will this paper directly address equity issues bearing on the extent and scope of health care coverage. In particular, the decision to create programs such as Medicare and Medicaid will be taken as given and attention will instead be devoted to considering how these programs are being managed from an efficiency point of view. 1/

The main conclusion of the paper is that there is a range of incentive effects arising from the existence of information asymmetries and imperfect competition in the market for health care which impart an upward bias to health care costs. Governmental policy is responsible for some of this bias. Manifestations of these incentive effects include health insurance induced excess purchases of health care, medical testing to avoid malpractice suits, and a market equilibrium where the amount of malpractice insurance purchased may be excessive. Recent policy measures adopted to alleviate the situation, while generally appropriate, represent at best partial solutions. In the absence of a comprehensive reform, they could be reinforced by other initiatives,

1/ There is, of course, a range of important policy issues concerning the extent of coverage offered under government programs. In recent years, for example, attention has been devoted to the vexing issue of intensive care. In 1978, Medicare enrollees in their last year of life were responsible for about 28 percent of program spending, although they constituted only 5.2 percent of all enrollees. (Economic Report of the President, CEA Annual Report 1985.) Attention has also been devoted to the fact that the current market-oriented approach has resulted in as many as 35 million individuals being uninsured (Enthoven and Kronick (1989)). It is developments such as these that have led an increasing number of commentators to call for a national health insurance scheme. (For example, Relman (1989)). For a further discussion of the role of difficult normative issues in health economics see Reinhardt (1989).

including abolishing the existing tax subsidy to health insurance (described below), further reforming the malpractice/jury-award system, and reviewing the reasons underlying the increasingly burdensome intensive care expenditures incurred in the United States.

Section 2 of the paper discusses both the factors underlying the surge in health care expenditures and considers how these factors may develop over the medium term. Section 3 presents the analytical issues which arise from the noncompetitive nature of the market for health care services. Section 4 evaluates the impact of government policies on the growth in health care expenditures. Some conclusions are presented in section 5.

II. Trends in Health Care Expenditures

1. Factors underlying recent growth in health care expenditures

The tabulation below shows trends in the shares of a range of categories of health expenditures. There are a number of notable features.

National Health Expenditures ^{1/}				
	<u>1965</u>	<u>1970</u>	<u>1980</u>	<u>1986</u>
(Billions of dollars)				
National health expenditures	41.9	75.0	248.1	458.2
(Percent of total)				
Personal health care	85.7	87.2	88.6	88.2
Of which:				
Hospital care	33.4	37.3	41.0	39.2
Physician services	20.3	19.1	18.9	20.1
Drugs and medical sundries	12.4	10.7	7.6	6.7
Nursing home care	5.0	6.3	8.2	8.3
Program administration	4.1	3.7	3.7	5.3
Government public health activities	1.9	1.9	2.9	2.9
Research and construction	8.4	7.2	4.8	3.6
(Percent of GNP)				
National health expenditures	5.9	7.4	9.1	10.9

^{1/} Source: Health Care Financing Review (1987).

First, the sources of growth in health expenditures are broadly based. Even though the relative shares of the components fluctuate, with the exception of drugs and medical sundries and of research and construction, all categories grew relative to GNP. 1/

Second, the share of hospital care expenditures in total health expenditures, which increased steadily over a number of decades, declined in the 1980s. This reversal, which may be temporary, is generally attributed to the 1983 reform whereby Medicare changed the way in which it reimbursed hospitals from a cost-based to a prospective per-admission basis. 2/

Third, the share of physician services has been rising in recent years. However, in late 1989 Congress agreed to implement a significant change in the way in which physician's are reimbursed under Medicare, replacing the current customary-prevailing-reasonable (CPR) system with a resource (or cost) based relative value scale (RBRVS). 3/

Fourth, reflecting the aging of the population, the share taken by nursing home care has increased in the 1980s.

Fifth, as already implied, the share of health care expenditures devoted to drugs and medical sundries has declined sharply. This development may reflect the fact that the drug and medical sundries industries conform more closely to the competitive norm than do other components of the health care sector, resulting in a greater discipline in pricing policy over time.

For health care expenditures as a whole, it is estimated that 32 percent of the increase in spending between 1985 and 1986 could be ascribed to economy-wide price inflation; 22 percent to medical care price inflation in excess of the general rate of inflation; 11 percent to population growth; 35 percent to other factors, most notably changes in per capita consumption and in "intensity" due to rising income levels. 4/ Changes in demographic structure play a relatively minor role, a result which has been observed over the past few decades irrespective of the sample period selected. Though subject to some variation, this pattern is repeated across the major categories of health expenditures. For example, taking the case of the 1.8 percentage point growth in the GNP share of in-patient care over the period 1965 to 1985, the bulk of that increase was due to a combination of growth in the "intensity" of care (i.e., real goods and services provided per

1/ The share of drugs/medical sundries was 0.7 percent of GNP in both 1965 and 1986 whereas that of research/construction declined from 0.5 percent to 0.4 percent.

2/ This reform, an element of the Tax Equity and Fiscal Responsibility Act (TEFRA) of 1982, is discussed further below.

3/ See discussion below.

4/ HCFA (1987). See also CEA (1985).

in-patient day) and hospital price inflation over and above general price inflation with only about 8 percent of the increase being due to changes in the age and sex mix of the population. 1/

The somewhat surprising result that demographic change may play a relatively minor role in driving up medical expenditures may be a function of the particular demographic breakdown used in the HCFA projections. In particular, the proportion of the population that is very elderly (age 85 and over) rather than elderly (age 65 and over) may be more important in explaining medical cost trends. This portion of the population is expected to grow by almost 4 percent a year over the next 20 years. 2/

In sum, the large increases in medical care expenditures are due to a number of factors. In particular, the intensity of use and the prices of health care products have been steadily rising where the latter may reflect inaccurate measurement of quality changes. While of themselves they do not necessarily imply a need for reform, when these trends are considered in the context of the medical market's structure, as shall be seen below, a number of policy issues do arise.

2. Prospects for medical care expenses

Based on historical trends and relationships as well as on recent experience, the Health Care Financing Administration (HCFA), which supervises the Medicare program, has projected aggregate health care expenditures through the year 2000. 3/ In addition to its own technical assumptions concerning the medical sector, the HCFA projections adopt the general economic and demographic assumptions contained under Social Security Trustee's alternative II-B. 4/

A summary of the HCFA projections is presented in the tabulation below, which points to a further sharp increase in the share of GNP devoted to health care. It is noteworthy that demographic change cannot be the primary factor driving this result since, as already observed, demographic developments stand to be relatively favorable in the 1990s. 5/ This serves to emphasize the importance of other factors such as the

1/ HCFA (1987).

2/ See Heller, Hemming, Kohnert, et. al. (1986), Gramlich (1988), and Rice (1989).

3/ See HCFA (1987) for a more detailed exposition of the methodology of the projections discussed in this section.

4/ Alternative II-B is discussed in greater detail in Appendix XII op. cit. concerning social security. The demographic and economic assumptions employed in the projections considered here are therefore essentially consistent with those underlying the simulations presented in Appendix XII.

5/ See footnote 3, page 1. Again this result needs to be qualified to the extent that the proportion of very elderly people increases.

increasing relative price of health care goods in explaining the runup in health care costs.

National Health Expenditures <u>1/</u>				
	<u>1986</u>	<u>1990</u>	<u>1995</u>	<u>2000</u>
(Billions of dollars)				
National health expenditures	458.2	647.3	999.1	1,529.3
(Percent of total)				
Personal health care	88.2	88.6	90.1	91.4
Of which:				
Hospital care	39.2	38.7	39.4	40.6
Physician services	20.1	20.5	20.9	20.9
Drugs and medical sundries	6.7	6.5	6.6	6.7
Nursing home care	8.3	8.4	8.5	8.4
Program administration	5.3	5.4	4.5	3.8
Government public health activities	2.9	2.9	2.7	2.5
Research and construction	3.6	3.2	2.7	2.3
(Percent of GNP)				
National health expenditures	10.9	12.0	13.4	15.0

3. U.S. federal medical programs

Recent and prospective developments in federal health care expenditures indicate that this sector of the health care industry is expanding even more rapidly than the industry as a whole. For example, HCFA estimates suggest that the federal share of national health expenditures will rise from about 29 percent of the total in 1986 to about 33 percent in 2000. 2/ Given the fiscal pressures faced by the United States, this prospect has to be viewed with concern.

1/ Source: HCFA (1987).

2/ HCFA (1987). The corresponding shares for state and local government are 12 1/2 and 10 percent. This represents a continuation of a trend favoring federal over state and local expenditures which has been evident for several decades. See Wilensky (1982).

The two major programs through which the federal government is directly involved in the health care industry are Medicare and Medicaid. 1/ Since it has been the focus of most recent reform efforts, attention in this paper will be devoted primarily to Medicare. 2/ Medicare is composed of two parts, hospital insurance (HI also referred to as Part A) and supplementary medical insurance (SMI or Part B).

The HI program pays for in-patient hospital care and other related care both of those aged 65 and over and of the long-term disabled. Disbursements in 1987 amounted to \$50.3 billion. Expenditures under this program are financed primarily through payroll (social security) taxation. Since its inception in 1965, revenues have exceeded expenditures, with the balance being placed in a growing trust fund. 3/ However, particularly in light of its mandate to care for the aged, the prospect for the financial status of the HI program is poor. As shown in the tabulation below, the most recent official projections suggest that the trust fund will be exhausted by 2005. 4/ Underlying this development, the program will begin to experience operating deficits beginning around 1995 with those deficits increasing steadily over the balance of the 75-year projection period. These large unfunded liabilities imply that major changes in the program will be needed to place it on a sound footing. In particular, they provide an incentive for cost-containment reform efforts (see below).

The SMI program pays for physician services, out-patient hospital services, and other medical expenses of those aged 65 and over and of those who are long-term disabled. Disbursements in 1987 amounted to \$31.67 billion. 5/ The growth rates in this program have also been rapid, with outlays doubling in the five years ended 1985. The program is voluntary and is viewed by the authorities as being analogous to

1/ Mention could also be made of programs run by the Veterans Administration and the Federal Government's involvement in medical research and teaching. The Government is also indirectly involved through provisions of the tax code subsidizing health care insurance.

2/ Further, though the federal Government has a significant financial commitment to Medicaid, which provides care for certain low-income families with dependent children and for most of the poor, aged, blind, and disabled persons, the program is administered by the states.

3/ This trust fund was, however, "raided" in 1982 to tide the OASI program over temporary liquidity problems. These cash-flow surpluses raise some of the same issues for federal budgetary policy as the social security (OASDI) cash flow surpluses. See Appendix XII, op. cit.

4/ The tabulation is based on Scenario II-B which is estimated by the social security administration and forms the basis of public discussion of the prospects of all social security trust funds. See Appendix XII, op. cit.

5/ The data in this paragraph are drawn from the 1988 Annual Report of the Board of Trustees of the Federal Supplementary Medical Insurance Trust Fund.

private group insurance. Although no long-run projections are made for this program--the trustees project an annual growth rate of 13 percent in benefits over the three years 1988-90--it is clear that further rapid growth in reimbursements is expected.

Financial Status of the HI Program 1/

(Percent of taxable payroll)

	<u>Expen-</u> <u>ditures</u>	<u>Scheduled</u> <u>Tax Rates</u>	<u>Actuarial</u> <u>Balance</u>	<u>Trust Fund</u> <u>at End of Year</u>
1988	2.52	2.90	0.38	69.6
1990	2.71	2.90	0.19	97.8
1995	3.11	2.90	-0.21	147.9
2000	3.42	2.90	-0.52	133.6
2005	3.68	2.90	-0.78	--
<u>Averages</u>				
1988-2012	3.37	2.90	-0.47	...
2013-2037	5.50	2.90	-2.60	...
2038-2062	6.89	2.90	-3.99	...

SMI revenues come from participant premiums and from general revenues where premium income has recently yielded 25 percent of program costs. 2/ This implies that the SMI program can be viewed as a subsidized insurance scheme.

In 1988, the Medicare Catastrophic Coverage Act (PL 100-360) was passed. This Act, which represented the largest expansion of Medicare benefits in 20 years, was intended to provide unlimited acute-care hospital coverage through HI and a cap on participant copayment costs for covered services as well as introducing coverage of outpatient prescription drugs through SMI. 3/ An innovative feature of the package was that the new benefits were to be financed by a combination of a flat premium and additional income taxes levied on the participants. However, as the magnitude of the additional (progressive) surtaxes became evident--the surtax would rise to \$850 p.a. for most participants earning over \$35,000--a storm of protest rose amongst those most affected

1/ Source: 1988 Annual Report of the Board of Trustees of the Federal Hospital Insurance Trust Fund. Scenario II-B.

2/ Premium rates are promulgated each year by the Secretary of Health and Human Services.

3/ For a more detailed discussion of the measure, see Iglehart (1989). Medicaid was also made more generous, though the amounts were not as great as those under Medicare.

with the result that the 1988 Act was essentially repealed in November 1989. 1/

4. International comparisons

Since health care expenditures are rising rapidly in the United States, the question naturally arises as to whether U.S. experience is unusual by international standards. The conventional way of answering this question has been to estimate cross country regression equations using data drawn from a range of developed countries gauging some measure of (per capita) medical care expenditures and (per capita) income. A relatively robust result to emerge from the literature is that variations in national income per capita explain more than 90 percent of the variation in medical care expenditures across countries. 2/ This result implies that the U.S. experience is what might be expected, given the standard of living in the United States and, further, has led some to conclude that the level of health care expenditures in any given country has little to do with the degree of state involvement in the provision and/or financing of health care. 3/ This is consistent with the fact that policy initiatives in many developed countries have been similar, with a focus on cost containment mechanisms such as mandating fee schedules and reimbursement rates. 4/ A final point, the data used in the international comparisons literature have also been employed to estimate the income elasticity of demand for health care services. This has generally, but not always, been found to exceed unity. 5/ This empirical

1/ Some minor elements were retained including, most notably, the Medicaid change allowing the spouse of a person entering a nursing home to retain \$786 a month in income and \$12,000 in assets.

2/ For example, Newhouse (1977) and Maxwell (1981).

3/ See, for example, Culyer (1982). It should be noted that the analysis is based on crude aggregate data and that the differences in the degree of state involvement in health care across countries may therefore be overstated. In the United States, while the share of government expenditure on medical care is relatively small, the Government is also indirectly involved through subsidies to health care expenditures offered via tax preferences. Some of the same incentive problems associated with public provision could also arise when private expenditures are subsidized. The level of aggregation also conceals the facts that the United States spends disproportionately more on intensive care and that some 35 million Americans are uninsured. Concerning the robustness of the results, Parkin et. al., for example, show that some of the results of this literature are sensitive both to the choice assumed for the functional form and to whether actual or Purchasing Power Parity (PPP) values are used. See Parkin, McGuire, and Yule (1987).

4/ Heller et. al. (1986), pp. 42-45.

5/ Using PPP values, Parkin et al. (1987), find the income elasticity to be less than unity.

issue is clouded by the fact that inter country cross-section estimates imply higher income elasticity values than intra-country estimates. 1/

5. Value of health care

Before considering which aspects of the health care market are potential candidates for reform, it is important to consider the impact of health care expenditures on actual health. The consensus of the research in this area is that additional health care expenditures in high income countries have little impact on the actual health of the population of those countries. For example, data from the RAND Health Insurance Experiment suggest that, for the average "non-aged" American, the clinical effect of additional medical care induced by no cost-sharing insurance schemes was restricted to health improvements among poor adults with hypertension or myopia. 2/ In other words, health care gains, to the extent they exist, seem to lie in specific targeted programs. While this may not necessarily imply great waste in health care programs--health care expenditures could afford other benefits such as providing reassurance, etc.--it suggests that curbs on health expenditures with a view to enhancing economic efficiency need not compromise underlying health standards.

III. Structure of the Health Care Market

Conditions in the market for health care services deviate significantly from those of a competitive market. Specifically, the health care market is characterized by imperfect information and imperfect competition. 3/

A simplified model of the market would identify three groups of actors; consumers (patients), producers (doctors/hospitals), and insurance companies (public and private). 4/ Consumers face uncertainty concerning future illnesses causing them to seek the risk-pooling advantages afforded by health insurance. Given that they are covered by health insurance, consumers will in general be more interested in ensuring the quality of the care they receive than in monitoring the cost of

1/ Newhouse (1987).

2/ The Rand Health Insurance Experiment is the basis of much empirical work in health economics. It involves a controlled experiment in which about 4,000 nondisabled individuals between the ages of 14 and 61 were randomly assigned to insurance plans for 3 to 5 years. The plans included free care and a range of plans with various coinsurance rates and limits. For a more detailed exposition of the experiment, see Brook et. al. (1979). Also CEA (1985), pp. 136-137.

3/ See Arrow (1963) and Stiglitz (1988).

4/ One respect in which this framework is simplified is by lumping doctors and hospitals/nursing homes as a single entity. In reality, doctor-hospital relationships also raise a number of issues.

that care. 1/ However, it is very difficult for consumers accurately to assess either the quality of the care they are receiving or whether they are purchasing the correct amount of care. The result is an information asymmetry between producers and consumers. Producers know their own cost structure. Since they are exposed to liability uncertainties, producers seek the risk-pooling advantages offered by malpractice insurance. For their part, insurance companies typically have less than complete information on those they are insuring, implying the existence of a further set of information asymmetries. 2/ A final feature of the health care market is that the heterogeneous nature of the services provided invites noncompetitive behavior.

The result is a range of points of interaction between the various actors in the health care market where the potential arises for a non-optimal or inefficient outcome, possibly imparting upward pressure to health care expenditures. This section will discuss these points in turn with a view to evaluating current practices in the health care market. Where appropriate, the implications of the evaluation for federal policy will be discussed.

1. Health insurance: general issues

To many commentators, the major problems of the medical industry derive from the nature of insurance. In the area of individual health insurance, the current market solution relies mainly on cost reimbursement insurance. Arrow has demonstrated that in an ideal world where, in particular, incentives are not affected by the existence of insurance, and where insurance administrative costs ("loading") are proportional to the total premium, then the optimal pattern of insurance will be full coverage above a deductible--a small amount of risk becomes tolerable to a consumer so as to save on the loading factor. 3/

In reality, incentives are affected by insurance contracts--since costs rather than (exogenous) illnesses are reimbursed, insurance encourages individuals to spend more on medical services than they otherwise would. The result is that the demand for medical services is distorted. As an example, consider an insurance policy with a coinsurance rate of 20 percent (the insurance company pays for 80 percent of the medical costs associated with an illness). This case is shown in

1/ It is worth noting that 75 percent of all health care expenditures in any year are accounted for by 10 percent of the population who are likely to be quite ill and well insured. Reinhardt (1989).

2/ As shall be discussed later, in a competitive framework there can be breakdowns in the risk-pooling equilibrium due to adverse selection problems. The potential for breakdowns of this type contributed to the establishment of federal programs such as Medicare.

3/ Arrow (1963) specifies the conditions that underly this result. Arrow's results were subsequently extended by Raviv (1979). The intuition of the result is elaborated upon in Ellis and McGuire (1988).

partial equilibrium terms in Figure 1, where DD refers to the demand curve for medical services and P_0B to the industry's (infinitely elastic) supply curve to the individual. The supply curve faced by the individual is given by P_1D , the net of insurance price he pays for medical care. In equilibrium Q_1 is demanded, an inefficient outcome. To elaborate, the area ADQ_0Q_1 which is the area under the demand curve, gauges how much the individual would be willing to pay for the increment Q_0Q_1 ; ABQ_0Q_1 , the area under the supply curve, gauges how much that same increment costs society to produce. The result is a net loss (excess burden) measured by ABD . 1/

This result is an example of the problem of moral hazard. 2/ In the absence of first-best indemnity insurance against illnesses, what is involved is a tradeoff between economic losses from moral hazard and the gains from risk trading. 3/ One branch of the literature has focused on this tradeoff and has considered the specification of optimal reimbursement schedules. For example, as can be seen from Figure 1, the more elastic the demand curve, the greater the potential for welfare losses, and therefore the higher the optimal coinsurance rates. 4/

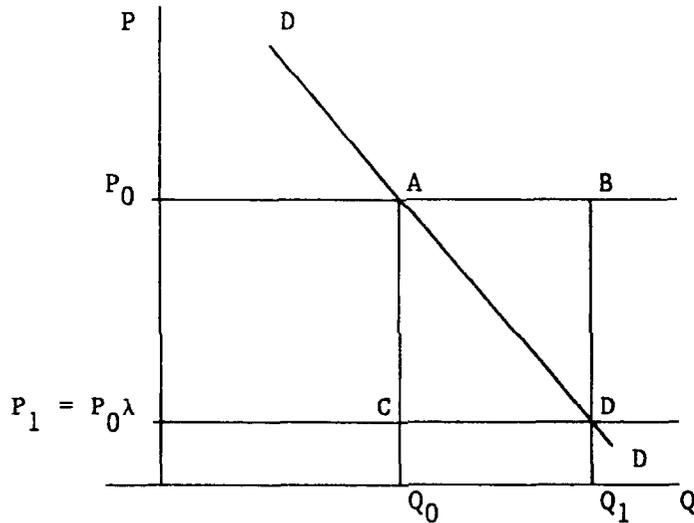
1/ This loss has likely been increasing over time--the average coinsurance rate has declined from 66 percent in 1950 to 28 percent in 1984, Newhouse (1988).

2/ The term originates from the view that it would be immoral to undertake an action for the sole purpose of obtaining an insurance benefit, and has come to refer to the broader range of issues associated with the incentive effects of insurance. Stiglitz (1988) p. 299.

3/ See Zeckhauser (1970). On the properties of first and second best solutions see Besley (1988).

4/ In a general equilibrium framework, and allowing for the possibility of different coinsurance rates on different types of medical care, a rule analogous to the Ramsey Rule of excise taxation arises. Besley (1988).

Figure 1



The nature of the optimum depends on the instruments assumed to be available to the insurance industry. Deriving an optimal coinsurance rate is analogous to deriving optimal excise taxes. Allowing simultaneously for deductibles, ceilings, and coinsurance rates, transforms the exercise into an optimal nonlinear pricing problem analogous to the optimal income tax problem. These more general problems have proved intractable. 1/

When analyzing the impact and/or optimality of differing insurance contracts, the assumptions concerning the underlying information structure are crucial. To this point, it has been implicitly assumed that the insurance industry has no information about the consumer's actions or efforts; the only information it receives is on outcomes. In reality, insurance companies do have additional information concerning the risks to which they are exposed. Concerning moral hazard, Shavell 2/ demonstrates that if the insurer has information which reflects in some fashion the truth about the insured's actions, then, no matter how imprecise the information, that information has value and should be

1/ Given the complexity of the optimal insurance problem, others have taken the tack of instead trying to explain the observed provisions of insurance policies. For example, Huberman *et. al.* argue that the option of personal bankruptcy leads to upper limits on coverage. (Huberman, Mayers, and Smith, Jr. (1983). In contrast, Pauly (1986) p. 642, suggests that such limits may be a very blunt instrument to control moral hazard.

2/ For example, Shavell (1979) and Holmstrom (1979).

incorporated in the insurance policy. 1/ This useful result suggests that efforts on the part of insurers to reduce the information asymmetries between themselves and consumers may serve to mitigate the impact of moral hazard.

A particular problem that arises from the asymmetry of information between the insured and the insurer is that of adverse selection--an individual will generally have more accurate information than insurance companies about his expected health expenditures and will shop among alternative policies to his advantage. Such behavior has adverse implications and encourages insurance companies to use screening devices such as age, etc., to identify risk categories. 2/ The potential for adverse selection raises the possibility of the nonexistence of a competitive equilibrium. 3/

On balance, this section indicates that, in the absence of a first-best solution, there is a tendency for insurance markets to encourage overconsumption of medical services with obvious implications for trends in health expenditures. The specification of the first-best solution, by emphasizing the role of identifying illnesses rather than expenses, suggests the appropriate direction for reform. 4/ Further, stressing the role of information asymmetries in generating distortions emphasizes the value of improving the flow of accurate information. 5/

2. Medical malpractice

Just as the patient-insurance company relationship is associated with information asymmetries, so is the patient-physician relationship. Because of the high cost of accurately monitoring the heterogeneous services rendered by physicians, patients will tend to be relatively uninformed purchasers of those services and face possible disappointment in the quality of care they receive. The result is a demand for an ex post settlements mechanism. Given the desirability of ensuring confidence in the medical industry and therefore of insuring that the providers of

1/ Shavell (1979). This is a strong result given the second best nature of the problem.

2/ The empirical evaluation of the importance of adverse selection is incomplete, at least in part due to the difficulty of defining discriminating empirical tests. Pauly (1986), p. 650.

3/ Rothschild and Stiglitz (1976). The authors found that when an equilibrium existed it consisted of contracts which specified prices and quantities and not just quantities alone.

4/ Some insurers and self-insured employers are experimenting with indemnity insurance. CEA (1985).

5/ The criterion here is solely that of enhancing economic efficiency. Applying this criterion may conflict with other aspects of public policy. Recent legal decisions, for example, have limited the way in which objective characteristics such as area of residence can be used in determining automobile insurance rates.

health care face the proper incentives, an appropriate settlements mechanism would work through the establishment of negligence rules. 1/

This raises the topic of malpractice insurance, and the question arises as to how this form of insurance influences health care costs. The theoretical literature has focused on the choice between, and the optimal properties of, the strict liability form and the negligence form of malpractice insurance. 2/ The former requires the party who has caused the loss (the physician) to pay damages whether or not he was negligent; the latter requires that that party pays damages only if negligent. The focus of the analysis has been to determine whether the availability of insurance in these forms might inappropriately alter the incentives for accident avoidance.

A strong conclusion that emerges from the literature is that, given certain assumptions, the availability of liability insurance of either form, while it does change the incentives created by liability rules, does not do so in a manner which would make it socially beneficial for the Government to intervene in the operation of competitive liability insurance markets. 3/ In the case of strict liability insurance, a first-best outcome can be achieved except when physicians are risk averse and the liability insurers cannot observe the physician's level of prevention activity. This result parallels that of the previous subsection. That is, when there are information asymmetries between the insured and the insurers, moral hazard problems arise, and less than complete coverage is optimal. 4/ In the case of negligence insurance, with damages and the due care standard set at optimal levels, a first-best solution is again attainable and the demand for insurance is zero. The essence of this provocative result is that if the correct incentives are in place, the physicians will choose to be non-negligent. 5/

As evidenced by the widespread purchase of expensive and complete malpractice insurance, the actual market solution deviates substantially from this theoretical benchmark. The data indicate that both the number of malpractice suits and the size of settlements have increased rapidly

1/ It has been argued that an alternative could be for patients to purchase first-party insurance to protect themselves against losses. However, first-party insurance would not address the incentive issue raised here. On first-party insurance, see Danzon (1985) and Spence (1977).

2/ Shavell (1982).

3/ Shavell (1982). The underlying assumptions Shavell relies on include (i) that victims cannot alter accident risks, (ii) that there are no administrative costs (loading); and (iii) that there are no errors or uncertainty as to legal outcomes.

4/ The analysis here can be recast in terms of a principal-agent model. See Shavell (1979).

5/ Shavell (1982), p. 130.

in the United States in recent decades. 1/ Moreover, malpractice insurance policies typically lack some of the features one would expect in insurance policies to encourage accident avoidance--there are no deductibles or coinsurance. 2/

These observed trends appear to be the result of the interaction of a number of interdependent influences which violate the assumptions underlying the theoretical results. The assumption that there be no errors or uncertainty as to legal outcomes needs to be relaxed. Danzon, for example, argues that optimal liability insurance contracts under a negligence rule must recognize the existence of imperfect competition, court error, 3/ and costly legal defense. Monitoring-cost economies of scale imply that damages and legal defense costs should typically be covered by the same policy. The optimal contract then involves a trade-off between providing physicians with the incentive to reduce accidents and the insurer the incentive to defend claims--the latter militates against positive coinsurance rates.

Also in this connection, the market solution for malpractice insurance appears to encourage excessive testing. Stiglitz reports that the fear of malpractice suits led to excessive treatment prescription and testing of between \$15 and \$40 billion in 1983. 4/

On balance, malpractice insurance as practiced clearly contributes to escalating health care costs. However, the complexity of the market for malpractice insurance rules out simple policy prescriptions. One exception to this conclusion is that further improving the accuracy of court decisions would appear to be desirable.

1/ Stiglitz (1982). Also, U.S. Department of Justice (1987). As an indication of trends, when expressed in 1986 dollars, the average medical malpractice jury award rose from \$423,000 in 1978 to \$2,056 million in 1986. There is some evidence that malpractice awards have declined somewhat in the most recent years following efforts at the state level to regulate the size of these awards.

2/ Danzon (1983).

3/ This can take the form of setting excessively high or excessively low due care standards. In theory if not in practice, the legal definition of negligence (Judge Learned Hand, 1947) is close to an efficient standard--negligence occurs if the product of the accidental loss by the probability of its occurring exceeds the burden of the accident avoiding measures adopted by the defendant (Danzon (1985)).

4/ Stiglitz (1988). That excessive testing is one of the response of physicians may in part be due to the reimbursement practices employed by insurance companies to defray health care costs. In particular, the fee-for-service reimbursement scheme may have tended to raise the relative cost of the physician's time as an input (Danzon (1985)).

A final point: as with any market, the characteristics of the malpractice market are endogenous. One response to developments in malpractice costs has been the creation of physician-owned mutual insurance companies in some states, internalizing the costs of legal defense. ^{1/} This reduces the need for monitoring costs. Another development--one which is a cause for concern--has been the recent finding that 12 percent of physicians who bill Medicare have ownership or investment interests in facilities to which they make patient references. These physicians order 45 percent more tests for their Medicare patients than do the patients of other physicians. This form of vertical integration would appear to exacerbate some of the negative impacts of the malpractice situation on health care costs.

3. Imperfect competition

The existence of information asymmetries and the heterogeneity of the services produced by the health care industry suggest that the market for these services will be noncompetitive. The literature on this subject has concentrated, though not exclusively so, ^{2/} on the physician services sector, taking as its starting point the observation that patterns of medical treatment are generally determined by physicians rather than by patients.

Currently, there are two competing frameworks for characterizing how the physician's profits from the physician-patient agency relationship might be constrained. ^{3/} On the one hand, there are those who argue that the ethics of the medical profession will temper the tendency for physicians to exploit the agency relationship for personal gain. ^{4/} The proponents of the supplier-induced demand (SID) hypothesis, whereby physicians are presumed to induce demand for their services as increases in doctor availability reduce the pool of patients per doctor, ^{5/} tend to be of this view and maintain that the greater the economic pressures on physicians, the less will ethics restrain their behavior. The alternative view holds that the information asymmetries are not so great and that therefore patients can evaluate physician services with sufficient accuracy to allow market forces to perform the constraining role. ^{6/} It has been argued that, since, irrespective of the model employed, physicians will balance their own welfare against that of their patients,

^{1/} Danzon, 1985, op. cit.

^{2/} Some have also studied the hospital as a firm. See, for example, Evans (1971). Pauly is notable for presenting an integrated analysis of hospital and physician behavior. See Pauly (1980) and Dionne and A-P Contandriopoulos (1985).

^{3/} See Farley (1986) for a further elaboration of this subject.

^{4/} For example, Arrow (1963) and Newhouse (1970).

^{5/} An earlier more extreme version of SID assumed that physicians could maintain a target income.

^{6/} For example, Pauly and Satterthwaite (1981).

the outcome need not result in a serious misallocation of resources. 1/ However, that result depends on the incentive mechanisms, i.e., the insurance systems in place.

The empirical literature has focused on evaluating the SID hypothesis. The impression that physicians can and do manipulate patients' demand for health services is supported by the observation that there are very large interregional differences in the per-capita utilization of certain elective medical procedures. 2/ Much of the original interest in the SID hypothesis, however, was generated by empirical research which found a positive relationship between per-capita utilization indices and, ceteris paribus, physician density ratios. 3/ However, the bulk of the empirical literature in this area has been criticized on the grounds both that the results as already implied are consistent with other theoretical frameworks and that the empirical tests lack discriminating power. 4/ Some recent empirical research, which uses tests with greater discriminating power, may suggest that the market for physician services, though not perfectly competitive, is more competitive than had been believed. 5/ It seems fair to conclude that the evidence is inconclusive. 6/

On balance, the most important observation would appear to be that the implications of the structure of the market for health care costs will depend on the incentives faced by the various agents. More generally, the issue of physician-induced demand raises the central question of whether the appropriate strategy for containing health care costs should focus on the demand side by creating the correct incentives for consumers to discipline providers or on the supply-side through regulation. 7/ This question underlies the analysis of the next section on government policy.

A final point: this subsection has not discussed other sources of noncompetitive behavior in the health care sector. These sources include barriers to entry to the medical profession 8/ and the existence of not-for-profit hospitals. The discussion in this subsection, therefore, is only an example of the possible implications of imperfect competition for health care.

1/ Farley (1986).

2/ Reinhardt (1985).

3/ For example, Fuchs and Kramer (1972).

4/ McCarthy (1985).

5/ McCarthy (1985) and Stano (1985).

6/ Eisenberg, Meyers, and Pauly (1987).

7/ Reinhardt (1989), p. 339.

8/ In this connection, it is interesting to note that the attrition rate of those admitted to medical school is only 3 percent, raising the general issue of how the medical sector self-regulates (Benham (1989)).

IV. Role of Government Policy

This section considers the Government's role in the health care market. While it was stated in the introduction that the focus will be on the efficiency rather than on the equity implications of government health care policy, equity considerations clearly have had an important influence on the conduct of that policy. For example, the Medicare and Medicaid programs can be viewed as a response to the fact that some combination of adverse selection effects and/or absence of purchasing power would have resulted in a large proportion of the population being uninsured.

1. Exclusion of employer contributions to medical insurance and health care

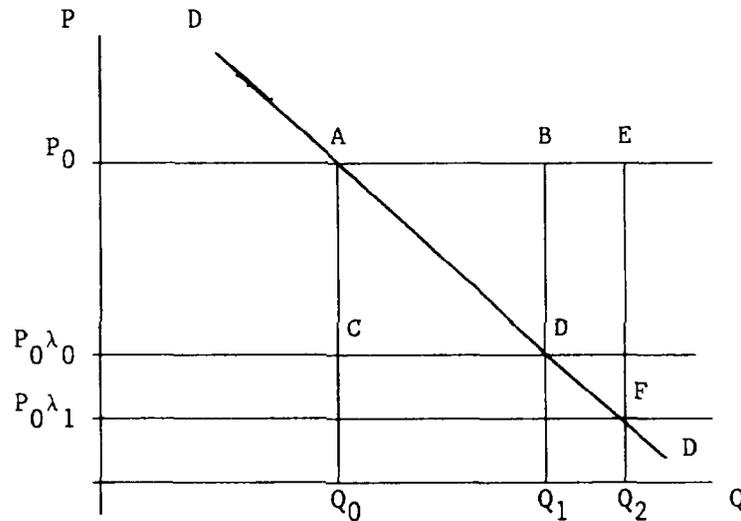
The ways in which the U.S. Government directly enters the health care market have already been described. An important additional indirect way is through the tax system. In this connection, the current practice in the United States is that an employer's contributions to an employee's health care costs are excluded from individual taxable income, although the contributions are a deductible expense for the employer. This constitutes a tax subsidy to medical insurance.

The issue this tax subsidy raises is that, even before the introduction of the tax subsidy, there is a pre-existing distortion in the health insurance market due to reimbursement practices. The tax subsidy is therefore in effect a subsidy of a subsidy. Returning to the simple example described in Figure 1 above, one effect of the tax subsidy would be to reduce the equilibrium coinsurance rate relative to that which would be generated in a no-tax-subsidy equilibrium. ^{1/}

This outcome is illustrated in Figure 2. In that figure $P_0\lambda_0$ corresponds to the price (coinsurance rate) that would result in the absence of the tax subsidy, whereas $P_0\lambda_1$ is the price (coinsurance rate) that would prevail after the introduction of the tax subsidy. The marginal impact of the tax subsidy on the size of the distortions--measured by the area BEDF--is large, technically a first-order effect.

^{1/} See Feldstein (1973) and Feldstein and Friedman (1977).

Figure 2



The size of the tax distortion depends on the elasticity of demand. Since Feldstein and Friedman's original work on this subject, a large literature has emerged in which the empirical evaluation of the significance of this theoretical point has been steadily refined. One representative recent estimate concludes that the tax subsidy could increase employer-sponsored health insurance demand by about 27 percent and aggregate medical services demand by about 5 percent. ^{1/} This is potentially a major effect and suggests that tax reform in this area merits serious consideration as a means of restraining health care costs.

2. The role of Medigap policies

Another important example of how the interaction between government policies and the private market can result in overinsurance is afforded by the case of the privately purchased insurance policies designed to supplement Medicare coverage (otherwise known as "Medigap" policies).

As background, Part A Medicare has a deductible (set at \$560 in 1989), copayments (at one fourth of the deductible per day for days 61 through 90 during a hospital stay) and, subject to minor reservations, the beneficiary faces full costs for days above the covered limits.

^{1/} See Chernick, Holmer, and Weinberg (1987). Also, Pauly (1986), Manning et. al. (1987), and Ellis (1986). Finally, Marquis (1985) considers whether increased cost-sharing will result in increased consumer search to find the lowest cost options. Her results were mixed.

Part B has a \$75 annual deductible and thereafter Medicare pays 80 percent of the "reasonable charge."

Elderly beneficiaries supplement Parts A and B with private medigap policies. While the premiums on these policies are often high, the policies from a beneficiary's point of view are highly leveraged--if the beneficiary is induced to consume more medical services because of a Medigap policy, the premiums on that policy are theoretically based on 20 percent of the incremental expenditure with 80 percent being picked up by Medicare. 1/ It has been argued that, in the absence of catastrophic care, medigap policies do not necessarily result in overinsurance, given the presumed high degree of risk aversion of the elderly. 2/ However, while it received little attention at the time, had catastrophic health care under Medicare remained in place, the interaction between Medicare and private supplementary insurance would likely have resulted in inefficient overinsurance, with the demand-limiting effect of the cost-sharing implied by the Medicare structure being weakened. 3/ As it is, the possibility of overinsurance cannot be ruled out. 4/

3. Health Maintenance Organizations (HMOs)

To this point, the focus has been on the impact of government intervention in the demand side of the health care market. It has been argued that there are a number of ways in which governmental actions have interacted with private health insurance markets with the effect of excessively reducing the optimal cost-sharing provisions of health insurance. The cases considered are examples of the general policy dilemma discussed earlier of the tradeoff between risk spreading and establishing appropriate incentives to restrain expenditures. 5/

1/ CEA (1985).

2/ McGuire (1989).

3/ McGuire (1989).

4/ In fact, most public policy attention has focused on containing what are perceived to be excessively high premium rates for Medigap policies. In particular, Representative Dingell, Chairman of the House Energy and Commerce Committee, has been working on a proposal to tighten federal enforcement of sales and marketing of these policies so as to prevent companies from preying on the fears of the elderly. As evidence of the need for such regulation, Representative Dingell notes that more than four million people own two or more Medigap policies. On a related matter, with the elimination of catastrophic health care, Medigap premiums stand to increase significantly, effectively reducing the benefits many will receive as a result of the abolition of Medicare surtaxes.

5/ Zeckhauser (1970).

This suggests that cost containment efforts might more profitably be targeted at the supply-side of the industry. An example of this type is afforded by Health Maintenance Organizations (HMO) which provide comprehensive medical care on the basis of a fixed periodic prepayment. Unlike insurance companies, HMOs directly provide health services and, as necessary, ensure payment for medical services rendered by outside organizations.

This type of arrangement offers a number of potential advantages. In particular, by treating many patients, an HMO can insure itself in a way an individual cannot by averaging high- and low-cost patients (ex post), thereby mitigating the tradeoff between risk spreading and incentive creation. Moreover, the incentive structure is more appropriate since in this case health care is produced in a set of firms controlled, so to speak, by the insurer. 1/ Any benefit of efforts to control costs will accrue entirely to the relevant HMO plan. 2/

HMO and the related preferred-provider insurance (PPI) plans have proved popular and now provide coverage for more than 60 million people. 3/ The bulk of the empirical literature concerning their impact on health care costs has concluded that HMOs have worked to reduce those costs. However, the precise manner in which they restrain health care costs is not clear. The conventional wisdom has been that the mechanism primarily involves a reduction in hospital admissions, 4/ but some recent work points to a reduction in the length of hospital stay as a major source of the cost containment. 5/ Irrespective of how the cost reductions are being achieved, evidence indicates that the reductions have not been at the expense of health status. 6/ Finally, despite the cost reductions, it is worth noting that HMOs appear to experience the same high rate of inflation as do other health care producers, indicating that they represent at best a partial solution to soaring health costs.

Thus far, the effects of government policies have been analyzed individually. The case of HMOs provides an example of how they interact. In particular, the medigap policies that emerged in response to Medicare may be frustrating the intent of Medicare's expenditure containment policies as they bear on HMOs. Beginning in 1985, Medicare began paying HMOs and qualified prepaid health plans for Medicare beneficiaries. However, increasingly these institutions cannot compete with a combination of Medicare and supplementary private (medigap) insurance.

1/ Ellis and McGuire (1988).

2/ Pauly (1986).

3/ PPI contracts selectively with health care providers about price and use controls and reimburses patients at a higher rate when they use contracting providers. Enthoven and Kronick (1989).

4/ Pauly (1986).

5/ Welch (1985). Welch's work is also notable for finding little evidence of adverse selection problems on the part of HMOs.

6/ Reinhardt (1987). (Reported in Stiglitz (1988), pp. 303-304).

Similarly, the tax subsidy discussed earlier also may tend to reduce the competitive advantage of HMOs. Indeed, this has led Senator Durenberger and Representative Gephardt to introduce legislation with a view to abolishing the tax subsidy for health insurance to encourage HMO growth. 1/

4. The Medicare prospective payment system

Prior to the passage of the Tax Equity and Fiscal Responsibility Act of 1982, Medicare reimbursed hospitals for the "reasonable costs" of care. With the passage of that act, however, the Medicare program began a four-year transition to payment of hospitals on a prospective per-admission payment system (known as PPS) 2/ Under this system, any Medicare admission must be classified into one of the 500 or so Diagnosis Related Groups (DRG). Once an admission has been assigned to a DRG, the Medicare reimbursement for that admission is set, since each DRG has an associated predetermined reimbursement amount. In the transition period, the amounts paid for each DRG will be allowed to vary by region. In the long run, however, there will be a "national price" for each DRG, though adjustments will be made to reflect urban/rural and area wage differences. Finally, an amount is set aside to make outlier payments to hospitals for extremely long length of stay and/or costly cases.

This change represents a major reform. By paying only the prospective amount, Medicare requires the hospital or other provider to bear the marginal costs of treatment. In other words, the PPS represents an attempt to introduce an extreme form of supply-side cost sharing. 3/ Conceptually the PPS appears to be the supply-side analogue for demand-side indemnity insurance for specific incidents of ill health.

However, the PPS reform has been superimposed on a market characterized by imperfect competition and information asymmetries, raising questions about the precise nature of the reform's incentive effects. One approach to analyzing these incentive effects is to view the physician as the key decision maker who acts as the "agent" for the two "principals"; the patient and the hospital. 4/ The PPS disturbs the commonality of interest for greater health care expenditures that used to be shared by patients and hospitals under the old cost-based reimbursement system. If physicians end up placing greater weight on hospital profits than on patient benefits, the tendency will be for an under-supply of medical services to occur. 5/ Other issues raised by the

1/ Welch (1985).

2/ See Pauly (1986), and Ellis and McGuire (1988).

3/ Ellis and McGuire (1986).

4/ Ellis and McGuire (1986).

5/ The fact that Medicare's PPS still permits cost-based reimbursement for certain outlier expenditures will tend to reduce the importance of this effect. Moreover, the tendency for physicians to operate in this fashion might be tempered by malpractice.

nature of the market include the possibility that PPS may induce cost shifting between public and private patients (for which there appears to be little clear evidence) 1/ and the possibility that the relatively broad nature of some of the DRGs might lead to adverse selection problems. 2/

As far as pinpointing the significance of these various potential incentive effects is concerned, the conclusion must be that the empirical literature to this point has not been particularly helpful. 3/ What is clear, however, is that the introduction of the PPS was associated with a remarkable reduction in hospital costs. 4/ However, there is some evidence that this may have been a once-for-all effect with the growth in costs subsequently increasing again. 5/ Nonetheless, the PPS can offer valuable lessons for other parts of the health care system. At a minimum, it suggests that incentives, particularly those associated with insurance schemes, have a powerful role to play in determining the course of health care costs.

5. The Resource Based Relative Value Scale (RBRVS)

The analysis earlier of the effects of imperfect competition on physician behavior concluded that while the empirical evidence is at best sketchy, the importance of setting the correct incentives for physicians is clear. The current Medicare practice for determining physician fees is known as the customary-prevailing-reasonable (CPR) system. 6/ (Private insurers use the similar usual-customary-reasonable (UCR) system.) The Deficit Reductions Act (DEFRA) of 1983 required physicians to choose either to participate or not to participate in the Medicare program, where a 'participating' physician agrees to accept Medicare reimbursements as payment in full. 7/ The intent of this measure was to reduce the practice of balance billing whereby physicians charge patients for more than what Medicare reimburses. Subsequent legislative measures, by favoring participating over nonparticipating physicians, have greatly enhanced the incentive to elect to participate. (The overall assignment rate increased from 51 percent in 1983 to 74 percent in 1987.) When this policy is viewed in conjunction with other

1/ Foster (1985).

2/ Dranove (1987).

3/ For example, there is disagreement on even the basic issue of whether the PPS reduced the average length of hospital stays. Newhouse and Byrne (1988).

4/ Pauly (1986) and discussion in section II above. An indication of the budgetary impact of PPS is that Part A expenditures will total \$18 billion less in FY 1990 than was expected shortly before the PPS was put into effect--a saving of 20 percent (Inglehart (1989)).

5/ Reinhardt (1989).

6/ The precise definitions of what is meant by these terms can be found in Hadley (1989).

7/ Zuckerman and Holahan (1989).

measures to freeze or constrain Medicare reimbursement rates, the ad hoc effect is to institute for physicians a scheme analogous to the hospitals' PPS.

The present system, however, seems generally to be presumed to have a couple of serious flaws. First, expenditures for physician's services are growing more rapidly even than spending for other medical care. At least in the case of Medicare, where fees have been constrained, this presumably reflects volume rather than rapid price increases. Second, it has been widely perceived that CPR is in some sense distortionary. In particular, it is often argued that the prices charged by physicians bear a weak relationship to the underlying costs of providing the relevant services. Specifically, surgeons' fees are substantially higher than internists' fees. 1/

It is against this background that the Physician Payment Review Commission, established in 1986 to advise the Government on the reform of Medicare's physician payment methods, has recommended that the CPR system be replaced with a fee schedule that would reflect resource costs. 2/ The fee schedule would be based on a revised version of the Resource-Based Relative Value scale (RBRVS) of Hsiao et. al. 3/

In November 1989, Congress passed legislation that in essence adopted the RBRVS scheme in conjunction with a number of cost containment measures. Specifically, the salient features of the package include the following. First, Medicare is to create a uniform national fee scale for each of 7,000 different types of doctor services, allowing for some minor regional cost variations. This scale is to be phased in between 1992 and 1996. Second, the fees are to be based on a relative value scale reflecting the time, effort, physical labor, overhead, etc., embodied in each procedure. Third, by 1993 balance billing in excess of 15 percent of the Medicare allowed amount would be forbidden. Fourth, if Medicare expenditures in any given year exceed Congress' expenditure target for that year, Medicare fees would be cut in the following year. The fee cuts that can automatically be imposed if "volume-performance standards" exceed guidelines will be phased in slowly, reaching 3 percent by 1996.

Concentrating on the potential impact of the RBRVS component of the package, it is useful to distinguish between its distributional implications within the medical profession and its potential influence on costs over time. On the former, in the short run an RBRVS is likely to eliminate at least some of the perceived inequities across medical

1/ Iglehart (1989).

2/ See Iglehart (1989) for an elaboration of the Commission's recommendations.

3/ Hsiao et. al (1988).

specialities. 1/ The longer-term implications, however, depend on whether existing income disparities reflect compensating differentials or entry barriers. 2/ This is an empirical matter which has yet to be resolved.

Concerning the potential impact of RBRVS on trends in health care costs, the proposed system does not appear to share with the PPS obvious cost-saving characteristics. In fact, given the recent practice with the CPR system, it can be argued that to have replaced the CPR basis with an RBRVS alone would have been tantamount to replacing one fee schedule with another fee schedule, signifying nothing more than a redistribution of monopoly rents or quasi-rents among doctors. 3/ This serves to emphasize the importance of the other elements of the package which seek to contain costs.

V. Concluding Observations

This paper has summarized a number of issues that arise when evaluating the U.S. health care industry. The range of issues covered has been far from exhaustive. 4/ Nonetheless, the analysis suggests a number of obvious conclusions.

First, the health care industry stands to become an ever more important focus of policy debates if, as seems likely, the costs of health care continue to escalate. Moreover, since the share of federal health care expenditures to total health care expenditures has tended to rise, the escalation in health care costs has particularly serious implications for the federal finances.

Second, the analysis demonstrates that economic behaviour in the market for the provision of health care is influenced by a range of imperfections arising from the existence of information asymmetries and imperfect competition which impart an upward bias to health care costs

1/ The Physician Payment Review Commission, for example, estimates, that an RBRVS scale of the type to be implemented would result in a family practice doctor receiving a 40 percent increase in Medicare fees while thoracic surgeons would experience a 19 percent decrease (Iglehart (1989)).

2/ Dranove and Satterthwaite (1989). In that connection, it is important to note that the cost indices that would underlie RBRVS are endogenous rather than exogenous. Hadley (1989).

3/ Pauly (1989).

4/ In addition to the gaps already referred to in the text one might also mention the fact that the purchase of individual health insurance is often made by employers who may have interests which differ from those of their employees, and the observed tendency for fee schedules to be slow to reflect the economies that arise over time as new technologies are absorbed by the health care system.

and imply the existence of large efficiency losses. These imperfections may well be more important than demographic trends in explaining trends in health care expenditures.

Third, the apparently relatively unimportant role of demographic effects in driving up health care costs should be interpreted with caution. It may only reflect how seriously health care costs have been affected by other factors. 1/

Fourth, the policy response to recent developments has been partial rather than comprehensive. A clear strategy concerning how to balance demand-oriented and supply-oriented policies has yet to emerge. In part this is because policy makers must continuously wrestle with the trade-off between equity and efficiency considerations. Moreover, measures adopted sometimes have unforeseen consequences, as emphasized by the interaction between the distortions arising from the tax deductibility of some health insurance premiums and the existence of moral hazard in the demand for health care. Further, although this paper does not address equity issues, it is worth noting that the market inefficiencies, by driving up costs, may be increasing the pressure to extend coverage to the uninsured. 2/ Finally, given the partial nature of the reforms, the unsurprising result has been that some of the policy responses appear to have been more effective than others, notably, the introduction of the PPS.

Fifth, the analysis suggests that if the process of reform is to continue to be incremental rather than comprehensive, a number of measures should be considered. Examples include abolishing the tax subsidy to employer health insurance contributions; re-examining the role of medigap insurance; and further reforming the malpractice/jury-award system. Finally, the great costs associated with intensive care in the United States suggest that that whole area of health care expenditures should be reviewed to ascertain the effectiveness of the various types of expenditure.

1/ Remember also that the very elderly may play a special role in driving up health costs.

2/ The Congressional Budget Office has estimated that premiums for such coverage in 1988 would have been roughly \$37 billion (Gramlich (1988)).

References

- Antos, J.R., 1989, "Alternative Ways of Paying Physicians: the Policy Context," paper presented at AEI conference on Regulating Doctors' Fees, April 17.
- Arrow, K.J., 1963, "Uncertainty and the Welfare Economics of Medical Care," American Economic Review, Vol. 53, No. 5, pp. 941-973.
- Benham, L., 1989, "Licensure and Competition in Medical Markets," Paper presented at AEI Conference on Regulating Doctor's Fees, Washington, D.C., April 17-18.
- Besley, T.J., 1988, "Optimal Reimbursement Health Insurance and the Theory of Ramsey Taxation," Journal of Health Economics, Vol. 7, No. 4, pp. 321-336.
- Brook, R.H., et.al., 1979, "Overview of Adult Health Status Measures Fielded in RAND's Health Insurance Study," Medical Care, Vol. 17, Supplement, pp. 1-131.
- Chernick, H.A., M. R. Holmer, and D.H. Weinberg, 1987, "Tax Policy Toward Health Insurance and the Demand for Medical Services," Journal of Health Economics, Vol. 6, No. 1, pp. 1-25.
- Culyer, A.J., 1982, "The NHS and the Market," in McLachlan and Maynard, eds., The Public/Private Mix for Health, (Nuffield Provincial Hospitals Trust: London).
- Danzon, P.M., 1985, "Liability and Liability Insurance for Medical Malpractice," Journal of Health Economics, Vol. 4, pp. 309-311.
- Davis, K., 1989, "National Health Insurance: A Proposal," American Economic Review, Papers and Proceedings, Vol. 79, No. 2, pp. 349-352.
- Dionne, G. and A-P Contandriopoulos, 1985, "Doctors and their Workshops," Journal of Health Economics, Vol. 4, No. 1, pp. 21-33.
- Dranove, D., 1987, "Rate-Setting by Diagnosis Related Groups and Hospital Specialization," RAND Journal of Economics, Vol. 18, No. 3, pp. 417-427.
- Dranove, D. and M.A. Satterthwaite, 1989, "A Monopolistically Competitive Model of the Physician Services Market," paper presented at AEI conference on Regulating Doctors' Fees, Washington, D.C., April 17-18.
- Economic Report of the President, CEA Annual Report 1985.

- Eisenberg, J.M., L.P. Meyers, and M.V. Pauly, 1987, "How Will Changes in Physician Payment by Medicare Influence Laboratory Testing?" Journal of American Medical Association, Vol. 258, No. 6, pp. 803-808.
- Ellis, R.P., 1986, "Rational Behavior in the Presence of Coverage Ceilings and Deductibles," Rand Journal of Economics, Vol. 17, No. 2, pp. 158-175.
- Ellis, R.P. and T.G. McGuire, 1986, "Provider Behavior Under Prospective Reimbursement," Journal of Health Economics, Vol 5, pp. 129-151.
- Ellis, R.P. and T.G. McGuire, 1988, "Insurance Principals and the Design of Prospective Payment Systems," Journal of Health Economics, Vol. 7, No. 3, pp. 217-237.
- Enthoven, A. and R. Kronick, 1989, "A Consumer-Choice Health Plan for the 1990s," New England Journal of Medicine, Vol. 320, No. 1, pp. 29-37, and Vol. 320, No. 2, pp. 94-100.
- Evans, R.G., 1971, "Behavioral Cost Functions for Hospitals", Canadian Journal of Economics, Vol. 6, No. 1, pp. 190-215.
- Evans, et.al., 1989, "Controlling Health Expenditures--The Canadian Realty," New England Journal of Medicine, Vol. 320, No. 9, pp. 571-577.
- Farley, P.J., 1986, "Theories of the Price and Quantity of Physician Services: A Synthesis and Critique," Journal of Health Economics, Vol. 5, pp. 315-333.
- Feldstein, M.S., 1973, "The Welfare Loss of Excess Health Insurance," Journal of Political Economy, Vol. 81, No. 2, Part 1, pp. 251-280.
- Feldstein, M.S. and B. Friedman, 1977, "Tax Subsidies, the Rational Demand for Insurance, and the Health Care Crisis," Journal of Public Economics, Vol. 7, pp. 155-178.
- Foster, R.W., 1985, "Cost-Shifting Under Cost Reimbursement and Prospective Payment," Journal of Health Economics, Vol. 4, pp. 261-271.
- Fuchs, V.R. and M.J. Kramer, 1972, Determinants of Expenditures for Physicians' Services in the United States: 1948-1968, (NBER: New York).
- Gramlich, E.M., 1988, "Reducing Budget Deficits: A Tale of Two Functions," paper presented at RSQE Outlook Conference, November 17-18.

- Hadley, J., 1989, "Theoretical and Empirical Foundations of the Resource Based Value Scale: Fact and Fancy," paper presented at AEI conference on Regulating Doctors' Fees, Washington, D.C., April 17-18.
- Health Care Financing Administration (HCFA), 1987, "National Health Care Expenditures, 1986-2000," in Health Care Financing Review, Vol. 8, No. 4 (Summer), pp. 1-23.
- Health Care Financing Review, Summer, 1987, Vol. 8, No. 4.
- Heller, P.S., 1989, "Aging, Savings, and Pensions in the Group of Seven Countries: 1980-2025," International Monetary Fund, WP 89/13.
- Heller, P.S., R. Hemming, P.W. Kohnert et.al., 1986, "Aging and Social Expenditure in the Major Industrial Countries, 1980-2025", International Monetary Fund, Occasional Paper No. 47.
- Holmstrom, B., 1979, "Moral Hazard and Observability," Bell Journal of Economics, Vol. 10, No. 1, pp. 74-91.
- Hsiao, W.C., et.al., 1988, "Estimating Physicians Work for a Resource-Based Relative Value Scale," New England Journal of Medicine, Vol. 319, No. 13, pp. 835-841.
- Huberman, G., D. Mayers, and C.W. Smith, Jr., 1983, "Optimal Insurance Indemnity Schedules," Bell Journal of Economics, Vol. 14, No. 2, pp. 415-426.
- Iglehart, J.K., 1989, "Medicare's New Benefits: Catastrophic Health Insurance," New England Journal of Medicine, Vol. 320, No. 5, pp. 329-335.
- Inglehart, H.J., 1989, "The Recommendations of the Physician Payment Review Commission," New England Journal of Medicine, Vol. 320, No. 17, pp. 1156-1160.
- Lister, J., 1989, "Proposals for Reform of the British National Health Service," New England Journal of Medicine, Vol. 320, No. 13, pp. 877-880.
- McCarthy, T.R., 1985, "The Competitive Nature of the Primary-Care Physician Services Market," Journal of Health Economics, Vol. 4, No. 1, pp. 93-117.
- McGuire, T.G., 1989, "Medigap: Paralyzing Medicare's Demand-Side Policies," paper presented at AEI conference on Regulating Doctors' Fees, Washington, D.C., April 17-18.

- Manning, W.G., et.al., 1987, "Health Insurance and the Demand for Medical Care: Evidence from a Randomized Experiment," American Economic Review, Vol. 77, No. 3, pp. 251-278.
- Marquis, M.S., 1985, "Cost-Sharing and Provider Choice," Journal of Health Economics, Vol. 4, pp. 137-157.
- Maxwell, R.J., 1981, Health and Wealth (Lexington Books; Lexington, MA).
- Newhouse, J.P., 1970, "A Model of Physician Pricing," The Southern Economic Journal, Vol. 37, No. 2, pp. 174-183.
- Newhouse, J.P., 1977, "Medical Care Expenditure: A Cross-National Survey," Journal of Human Resources, Vol. 12, pp. 115-125.
- Newhouse, J.P., 1987, "Gross National Differences in Health Spending; What do they Mean?" Journal of Health Economics, Vol. 6, No. 2, pp. 159-162.
- Newhouse, J.P., 1988, "Has the Erosion of the Medical Marketplace Ended?" Journal of Health Politics, Policy, and Law, Vol. 13, pp. 263-278.
- Newhouse, J.P. and D.J. Byrne, 1988, "Did Medicare's Prospective Payment System Cause Length of Stay to Fall?" Journal of Health Economics, Vol. 7, No. 4, pp. 13-416.
- Parkin, D., A. McGuire, and B. Yule, 1987, "Aggregate Health Care Expenditures and National Income," Journal of Health Economics, Vol. 6, No. 2, pp. 109-127.
- Pauly, M.V., 1980, Doctors and their Workshops: Economic Models and Physician Behavior (University of Chicago Press: Chicago).
- Pauly, M.V., 1986, "Taxation, Health Insurance, and Market Failure in the Medical Economy," Journal of Economic Literature, Vol. 24, No. 2, pp. 629-675.
- Pauly, M.V., 1989, "Fee Schedules and Utilization," paper presented to AEI conference on Regulating Doctors' Fees, Washington, D.C. April 17-18.
- Pauly, M.V. and M.A. Satterthwaite, 1981, "The Pricing of Primary Care Physicians' Services," Bell Journal of Economics, Vol. 12, pp. 488-506.
- Raviv, A., 1979, "The Design of an Optimal Insurance Policy," American Economic Review, Vol. 69, No. 1, pp. 84-96.

- Reinhardt, U.E., 1985, "The Theory of Physician-Induced Demand: Reflections After a Decade," Journal of Health Economics, Vol. 4, No. 1, pp. 187-193.
- Reinhardt, U.E., 1987, "Health Maintenance Organizations in the United States: Recent Developments and Performance," Princeton University, Mimeo.
- Reinhardt, U.E., 1989, "Economists in Health Care: Saviors, or Elephants in a Porcelain Shop?" American Economic Review, Papers and Proceedings, Vol. 79, No. 2, pp. 337-342.
- Relman, A.S., 1989, "Universal Health Insurance: Its Time Has Come: Editorial," New England Journal of Medicine, Vol. 320, No. 2, pp. 117-118.
- Relman, A.S., 1989, "The National Leadership Commission's Health Care Plan," New England Journal of Medicine, Vol. 320, No. 5, pp. 314-315.
- Rice, D.P., 1989, "Health and Long-Term Care for the Aged," American Economic Review Papers and Proceedings, Vol. 79, No. 2, pp. 343-348.
- Rothschild, M. and J. Stiglitz, 1976, "Equilibrium in Competitive Insurance Markets: An Essay on the Economics of Imperfect Information," Quarterly Journal of Economics, Vol. 90, No. 4, pp. 629-649.
- Shavell, S., 1979, "Risk Sharing and Incentives in the Principal and Agent Relationship," Bell Journal of Economics, Vol. 10, No. 1, pp. 55-73.
- Shavell, S., 1982, "On Liability Insurance," Bell Journal of Economics, Vol. 13, No. 1, pp. 120-132.
- Spence, A.M., 1977, "Consumer Misperceptions, Product Failure, and Product Liability," Review of Economic Studies, Vol. 64, p. 561.
- Stano, M., 1985, "An Analysis of the Evidence on Competition in the Physician Services Markets", Journal of Health Economics, Vol. 4, pp. 197-211.
- Stiglitz, J., 1988, Economic of the Public Sector, (Norton: New York City).
- U.S. Department of Justice, 1987, An Update on the Liability Crisis (Washington, D.C.: U.S. Government Printing Office).
- Zeckhauser, R., 1970, "Medical Insurance: A Case Study of the Tradeoff Between Risk Spreading and Appropriate Incentives," Journal of Economic Theory, Vol. 2, No. 1, pp. 10-26.

Zuckerman, S. and G. Holahan, 1989, "Medicare Balance Billing: Its Role in Physician Payment Reform," paper presented at AEI conference on Regulating Doctors' Fees, Washington, D.C., April 17-18.

Welch, W.P., 1985, "Health Care Utilization in HMOS," Journal of Health Economics, Vol. 4, pp. 293-308.

Wilensky, 1982, "Government and the Financing of Health Care," American Economic Review, Vol. 72, No. 2, (May), pp. 202-207.

1988 Annual Report of the Board of Trustees of the Federal Supplementary Medical Insurance Trust Fund.

1988 Annual Report of the Board of Trustees of the Federal Hospital Insurance Trust Fund.

