



# PRICE SENSITIVITY IN HEALTH CARE: IMPLICATIONS FOR HEALTH CARE POLICY

July 2005 Second Edition

Michael A. Morrisey, Ph.D.







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# EXECUTIVE SUMMARY

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The purpose of this monograph is to inform policy debates over health care by summarizing what we know about the functions of the health services and health insurance markets in the United States. The monograph does three things: (1) it describes the nature of the health care and health insurance markets in the U.S. from the point of view of the purchasers of services, (2) it reviews the existing literature on the extent to which consumers have been responsive to changes in prices and premiums, and (3) it proposes changes in the health services and health insurance markets that would enhance the role of the price system. These issues are at the heart of discussions over the future of health care costs and access. If consumers are responsive to medical care prices and buy less when faced with higher prices, then escalating costs can be controlled by providing consumers with incentives to pay higher out-of-pocket prices for care and with better information on the quality of providers, the prices they charge, and the effectiveness of their services. If consumers are responsive to the prices of health insurance plans, then savings from plan changes will find their way to consumers, and the subsidized premiums can be used to expand access to needed coverage.

The second edition of *Price Sensitivity* comes some 13 years after the first. Our understanding of the economics of health services and health insurance markets is largely unchanged. Thus, Chapters II and IV are much like their earlier versions. Chapter III has been extensively revised. The Chapter reviews the RAND Health Insurance Experiment and the studies that have followed. These studies largely serve to corroborate the 30-year-old findings of the RAND work. The important new work expands our knowledge of the extent of price sensitivity of prescription drugs and the effects of deductibles. These are reviewed extensively.

There has been a wealth of new empirical research on employer-sponsored health insurance. As a result, Chapter V has been totally re-written. The policy landscape has also changed dramatically since 1992. Then there were dozens of serious proposals for fundamental change to the U.S. health care system. Today, reform focuses on relatively incremental change. Consequently, Chapter VI has also been re-written with a focus on private and public sector initiatives to enhance the role of the price system. However, there remains a call for fundamental changes to the tax treatment of employer-sponsored health insurance.

The story that emerges from the extensive literature on health services in Chapter III is that they are moderately price sensitive. A 10 percent increase in price leads to about a 2 percent reduction in the use of services. In contrast, a 10 percent increase in the price of gasoline reduces the quantity purchased by about 5 percent and a similar increase in the price of a new car reduces purchases by about 12 percent.



Price responsiveness differs for different types of services and for different groups in the population. Further, some price changes are not small. The move from no insurance to full coverage, for example, lowers the price of covered services by 100 percent. The literature indicates that:

- The introduction of full coverage for physician visits increases both visits and expenditures by about two-thirds. The increase is only about one-half as great if the insurance plan requires subscribers to pay 25 percent of the physician bill.
- Full coverage for emergency room visits relative to no coverage increases visits by 54 percent and expenses by 45 percent. Most of the increase is for less urgent visits.
- Hospital admissions are the least price responsive. Full coverage compared to no coverage increases admissions and expenditures by about 30 percent. This finding, however, understates the actual effect because of the way the studies were designed.
- There is little evidence that the failure to insure ambulatory physician services leads to higher hospital rates or expenditures, although no truly long-run studies have been conducted. Instead, the evidence suggests that insuring ambulatory services increases hospital use.
- In general, higher income groups are less price sensitive than lower income groups.
- The use of ambulatory services by children is about as price sensitive as is use by adults. Hospital service use by children tends to be almost insensitive to differences in price.
- Dental services are subject to a large transitory effect when a large price reduction is introduced. In subsequent years, however, full coverage tends to result in about a 34 percent increase in visits and a 46 percent increase in expenditures.
- Mental health services tend to be the most price sensitive. Full coverage relative to no coverage increases expenditures by about 300 percent relative to no coverage.
- There has been little research on nursing home price sensitivity, but the little available work suggests that private demand elasticity may be in the range of -1.0. That is, a halving of the out-of-pocket price could double the quantity demanded. Much more work is needed in this area.
- Full coverage relative to no coverage increases the number of prescriptions per person by 50 percent and drug expenditures by 76 percent. More recent studies have established that the use of different copays for generic, preferred brands and non-preferred brands of drugs reduce the use of each category of drug and that the higher copays on non-preferred brands lead to substitution of other compounds.
- The RAND study found that a \$3,200 family deductible (in 2004 dollars) followed by free care when the deductible was met, reduced medical care expenditures by about 30 percent. More recent work from the Netherlands suggests that a \$1,000 family deductible might reduce spending by approximately 14 percent.

Chapter V demonstrates that the picture of price responsiveness is not as clear for health insurance as it is for health services. There has not been a single unifying study that addressed the key issues in a systematic and consistent fashion. Nonetheless, there have been a number of carefully conducted studies that have taken advantage of existing data. Further, the efforts at data assembly and the sophistication of the research methods used are truly impressive. I draw eight conclusions from this literature.

First, there is considerable price sensitivity on the part of insured employees. They will switch plans for relatively small changes in the out-of-pocket premiums. In the best study to



date, the researchers found that in a firm in which HMOs enrolled 50 percent of the single employees, an HMO with 30 percent of this pie would lose 78 percent of its share of these employees if it raised the out-of-pocket premium by \$5 (\$9 in 2004 dollars). Findings of this sort are corroborated by other, more recent, work.

Second, while the size of employee premium contributions plays a large role in the choice of health plan, the price responsiveness of employees for health insurance coverage of any type is relatively low. That is, changes in the out-of-pocket premium have only a small impact on the decision to take-up insurance offered by an employer. The take-up elasticity estimates across studies are in the range of -0.01 to -0.09. However, these small elasticities, when coupled with the large increases in out-of-pocket premiums over the 1990s are able to explain all of the drop in employer-sponsored coverage.

Third, as a matter of theory, it is virtually a given that employees pay for health insurance in the form of lower wages or reductions in other forms of compensation. The empirical evidence for this proposition has historically been very weak. However, four studies conducted between 1994 and 2004 now provide much stronger empirical support for this fundamental proposition.

Fourth, if employees pay for health insurance, their employers serve as agents. The evidence on their role as agents is mixed. It is clear that employers pay attention to the broader choices that employees have available through spouses, and firms tailor benefit decisions around those broader choices.

Fifth, tax policy affects the provision on employer-sponsored health insurance. The best recent work suggests that a 10 percent reduction in the tax-price of health insurance would lead to a -2.5 percent increase in the probability of a firm offering coverage and a 7 percent increase in insurance spending by employers on behalf of their employees. There is virtually no work on the effects of flexible spending accounts and Health Savings Accounts. The next wave of research should address these issues.

Sixth, small firms appear to have only a modest price sensitivity for health insurance. The growing number of estimates put the offer elasticity at -0.54 to -0.63. The smallest firms are the most premium sensitive. One of the reasons that small firms are least likely to offer coverage is that they find health insurance more expensive and therefore have a comparative advantage in offering money wage compensation. As a consequence, recent research suggests that they will disproportionately attract people who value insurance less intensely.

Seventh, there have been a number of efforts to reform the small group insurance market. These efforts have been unsuccessful when measured against the yardstick of increasing the number of small firms offering coverage.

Finally, the limited evidence from the non-group market suggests that the elasticity of demand for individual coverage is in the -0.2 to -0.4 range. Given the potential of this market for advocates of tax-credits and those interested in minimizing the role of employer-sponsored coverage, much more work is needed in this area.

Price responsiveness and the role of the price system in health services and health insurance markets can be enhanced in several ways.

- Individuals, employees, and their employer agents can select insurance plans with higher deductibles and larger copays. Higher copays and deductibles lead to lower levels of utilization and lower health insurance premiums. By taking insurance plans with such features, consumers are able to control their expenditures for smaller health care services while maintaining protection for larger, more serious health events.



- Employers can eschew many forms of utilization management. There is virtually no evidence that gatekeepers and other efforts devoted to “managing” ambulatory use have reduced expenditures. These should be eliminated. The evidence with respect to pre-admission certification and concurrent review is stronger, but remarkably limited.
- Managed care plans should return to selective contracting. The success of managed care plans has been in its ability to negotiate lower prices in exchange for assurances of volume. These successes have been dramatic and the evidence of selective contracting success is broad based and consistent. It has not gained from utilization management that has needlessly alienated patients and providers.
- There are also a number of actions that government can do, and stop doing, to improve the functions of the price system in health services and health insurance markets.
- States can eliminate certificate of need programs. There is virtually no evidence that these programs have reduced hospital costs. However, these programs appear to be very effective in reducing or delaying competition.
- State should eliminate “any willing provider” and “freedom of choice” laws. These laws effectively eliminate the ability of managed care plans to selectively contract with providers. As such, they undermine the most successful cost containment effort of the 1990s.
- Continue to apply the antitrust statutes to healthcare. There is anecdotal evidence of price fixing among physician groups and mixed evidence that hospital consolidation has emerged as a reaction to managed care contracting. Antitrust concerns are necessarily specific to the relevant product and geographic markets. If price is to be effective in allocating medical and insurance services, regulators must continue to investigate situations that may artificially raise prices.
- Deregulate the group insurance market. Since the mid 1970s the states have aggressively regulated the group insurance market. There are said to be over 1,800 insurance mandates in place as of 2004. Moreover, virtually all of the states have enacted small group underwriting reforms. There is evidence to suggest that the mandates have raised costs and reduced the number of insured. There is no evidence that the underwriting reforms have expanded coverage and some suggestion that they have simply shifted the composition of those with insurance. These laws should be eliminated.
- Provide information on prices and quality of health care services. Health services are complicated. Yet consumers are increasingly called upon to make their own decisions on the value of particular procedures and treatments. The “consumer directed health care” movement, the role of employers as agents for their employees, and the efforts of managed care plans to selectively contract are all predicated upon an ability of buyers to determine value and relative value. The public and private sectors can do much to further the role of a price system in health care by developing valid, reliable and easily understood measures of price and quality. The research to date in this area is mixed at best. There is some evidence, however, that information on providers and on health plans are beginning to affect decisionmaking. More experimentation and more research in this arena are clearly in order.

Finally, the largest single change that would enhance price competition in the health insurance industry would be the elimination of the tax exemption for employer-sponsored health insurance. It would lead to significant changes in the health services market as well. Such an expansion should, of course, be tied to a reduction in the overall tax rates, leaving tax revenues unaffected. The current tax system provides strong tax incentives to be over-insured through the employer-sponsored system and provides greater tax subsidies to those in higher tax brackets.



Elimination of the tax subsidy for health insurance would lead to changes in the nature of coverage. We could shift to coverage of large loss/moderate probability events and self insure for low cost/very low and very high probability events. Second, we would choose high deductible and high copay plans and search more aggressively for providers who offer value for the health care dollar. Third, however, the number of uninsured is likely to increase. The lower health insurance premiums will encourage some to buy coverage, but almost certainly not enough to overcome the elimination of the tax subsidy. A tax-credit for low-income individuals or indeed a tax-credit as an alternative to the tax exclusion of employer-sponsored health insurance is worth further consideration.



# CHAPTER I: INTRODUCTION

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Health care in the United States continues to be faced with dual problems of high and rising costs and a large and growing number of uninsured. Current estimates put health care spending at \$1.6 trillion in 2002, 14.9 percent of the gross national product (Levit et al. 2004). The number of uninsured stood at 36.5 million, 17.7 percent of the under age 65 population in 2003 (Fronstin 2004).

While there have been a number of grand proposals for health care reform over the years, no such efforts are currently being seriously considered. Instead, employers, governments and advocates are proposing relatively modest changes to one or another program. In the private sector, employers are raising employee premium contributions to deal with rising insurance costs. Insurance consultants are proposing “consumer directed health plans” designed to take advantage of recently enacted legislation allowing Health Savings Accounts. In the public sector there are federal proposals for a refundable health insurance tax credit for low income families. At the state level some are calling for the expansion of Medicaid and the State Children’s Health Insurance Plans. Others are calling for fundamental change in Medicaid, replacing the current system with state subsidies to purchase private coverage. Still others are retreating from generous experiments with public programs such as TennCare in Tennessee.

The purpose of this monograph is not to critique these efforts or to advance another proposal. Its aim is more modest. It seeks to narrow the debate over health care reform by summarizing what we know about the functions of the health services and health insurance markets in the U.S. In the last 10 years we have learned a great deal about the functioning of the health insurance market, particularly how employees and businesses respond to changes in insurance prices. We have known a good deal about the effects of out-of-pocket prices on the use of health services for some time, but in the last 10 years this knowledge has improved particularly with respect to the use of prescription drugs and the effects of deductibles. The monograph focuses on two questions: How responsive are consumers to changes in the prices of medical services? How responsive are they to changes in the price of health insurance?

These questions are at the heart of our national concerns over health care costs and access. If consumers are responsive to medical care prices and buy less when faced with higher prices, then our escalating costs can be controlled by providing consumers with incentives to pay higher out-of-pocket prices for care and with better information on the quality of providers, the prices they charge, and the effectiveness of their services. If consumers are responsive to the prices of health insurance plans, then subsidized premiums can be used to expand access to needed coverage. One can also expect some net reduction in costs by trading higher out-of-pocket medical care prices for lower insurance premiums.

Incentives, of course, are never as straightforward as all this. Most of us have health insurance. When we use it, we only pay a portion of the price of medical care. The insurance, in a sense, subsidizes our use and we use more. Further, most of us get our health insurance through our employers. The tax laws lower the price of those benefits because we pay for them with pre-tax dollars. If we are insensitive to medical care prices and the size of the premiums we pay, it is no wonder health care costs are high. Individually we have incentives to get too much insurance and to use too much care.

The key issue is how price sensitive are we. The follow-on issue is what could we do to make us more price conscience. There are three possibilities: higher out-of-pocket prices for



health services and/or health insurance, better information about what works and what it costs from different providers, and a reduction in the transactions costs that may be keeping us from getting the services we wish to buy.

This, then, is the purpose of the paper:

- To clearly describe the nature of the health care and health insurance markets in the U.S. from the point of view of the purchasers of services;
- To review the existing empirical literature on the extent to which consumers have been responsive to changes in prices and premiums; and
- To discuss the effects of efforts to introduce market reforms in the health services and health insurance markets.

Chapter II contains a discussion of the demand for health services. It begins with a discussion of how economists view markets in general and health services markets in particular. Three points are paramount. First, the essence of the economist's concern is price sensitivity — how much more of a good or service does one consume when the price actually paid is reduced. Second, the prices of health services contain both money and time components. When the money price is low, time becomes more important as a determinant of services used. Similarly, those who face low time costs are more sensitive to money prices. Third, health insurance can be viewed as lowering the money price for health services. As a consequence, people will consume more services.

Chapter III reviews the empirical literature on the price sensitivity of health services. After a brief discussion of some of the early literature and its problems, the RAND Health Insurance Experiment is summarized. This 30-year-old, multimillion dollar demonstration project still provides some of the best evidence on price responsiveness in health care. More recent, much smaller scale investigations continue to demonstrate that the RAND estimates are essentially correct. The chapter's focus is primarily on hospital and physician services. Dental care and mental health services exhibit different patterns of price response so these areas are reviewed as well. The research on price sensitivity of nursing home care is reviewed. This is really a call for more research; we know very little about the demand for long-term care health services and the aging of the baby boom generation will make such knowledge critical. The literature on prescription drugs is included because of substantial new learning and the increased importance prescription drugs play in medical treatment. Finally, attention is given to the effects of higher deductibles on the use of health services. With Health Savings Accounts and efforts to wean consumers off of first-dollar coverage, it is important to consider the evidence.

Chapter IV presents an overview of the demand for insurance and the nature of underwriting. It also develops a rationale for why health insurance is purchased in the work place, and why some firms and employees are likely to prefer a labor compensation package that does not include health insurance coverage.

Chapter V examines the empirical literature on the price sensitivity of health insurance. This area has seen a wealth of new creditable research in the last decade. Employee choice of health plans is very sensitive to the relative size of the employee premium contributions. However, employee decisions to take employer-sponsored insurance at all is subject to some (small) price sensitivity. The large increase in out-of-pocket premium contributions, however, has had the effect of reducing take-up rates appreciably. The new research makes it clearer that employees pay for health insurance in the form of lower wages and other benefits. There is also evidence that employers take a broader range of worker coverage options into account when they determine employee premium contributions. It has long been understood that the tax treatment of employer-sponsored health insurance affects whether and how much coverage is provided.



The last decade has seen significant improvements in the estimates of how big these effects are. The small group and non-group markets are very different than large group insurance markets. The former has been subject to a host of unsuccessful efforts at reform and the latter has been essentially ignored by researchers. This inattention to the individual market must be rectified if tax credits, large roles for consumers in insurance and health services decisions, and efforts to reduce the role of employers are to not result in unintended consequences.

Finally, Chapter VI discusses some proposals for enhancing price competition in the health services and health insurance markets. There are three sorts of things that can be done. First, people can choose to have higher copays and deductibles for ambulatory care. There is good evidence that these reduce utilization. However, insurers should eliminate much of their utilization management efforts; there is little evidence that these have been effective and they have alienated consumers and providers. Managed care plans should again focus on their comparative advantage—narrow network panels of providers who have agreed to accept lower prices. There is substantial evidence that this “selective contracting” lowers costs. Second, government can help by eliminating barriers to price competition; eliminate certificate of need, any willing provider, and mandated benefit laws. Government can also help by continued enforcement of antitrust laws in health care and by encouraging the provision of price and quality information in both health care and insurance markets. Finally, if we are serious about enhancing the role of the price system in health care, we can eliminate the tax exclusion of employer-sponsored health insurance. Expand the definition of the income and payroll tax base to include income received in the form of employer-sponsored health insurance. However, do this in the context of lowering tax rates. This has the effect of keeping the program tax-revenue neutral while giving people a much stronger incentive to obtain only coverage that is worth the cost and to pay much more attention to the value of the health services they receive. We could also consider replacing the tax exclusion of employer-sponsored health insurance with a general refundable tax credit. This has the advantage of breaking the link between the progressive nature of the current tax exclusion and the incentive to have greater shares of our compensation in the form of tax free health benefits.

This second edition of *Price Sensitivity* comes some 13 years after the first. Our understanding of the economics of health services and health insurance markets is largely unchanged. Thus, Chapters II and IV are much like their earlier versions. Chapter III has been extensively revised. The Chapter reviews the RAND Health Insurance Experiment and the studies that have followed. These studies largely serve to corroborate the 30-year-old findings of the RAND work. The important new work expands our knowledge of the extent of price sensitivity of prescription drugs and the effects of deductibles. These are reviewed extensively.

There has been a wealth of new empirical research on employer-sponsored health insurance. As a result, Chapter V has been totally re-written. The policy landscape has also changed dramatically since 1992. Then there were dozens of serious proposals for fundamental change to the U.S. health care system. Today, reform focuses on relatively incremental change. Consequently, Chapter VI has also been re-written with a focus on private and public sector initiatives to enhance the role of the price system. However, there remains a call for fundamental changes to the tax treatment of employer-sponsored health insurance.



# CHAPTER II: THE DEMAND FOR HEALTH SERVICES

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The demand for any good or service is generally viewed by economists as depending upon the price of the service, the price of related goods and services, income and tastes. Price is the maximum amount the individual is willing and able to pay for the product. The price of related goods refers to substitutes and complements that tend to be used in place of, or together with, the good. Income refers to permanent family income. Tastes are the set of preferences held by the individual; these include such factors as health status. To be meaningful the product under study must be precisely defined — services of a given quality at a particular time and place. Thus, we could speak of the demand for a routine physical given by Doc Webster during the month of April.

Price sensitivity is generally defined in terms of elasticity, i.e., the responsiveness of the quantity consumed to a change in price. For example, a 10 percent increase in the price of Doc Webster's routine physical may result in a 6 percent reduction in the number of physicals demanded. The key to price sensitivity is the availability of substitutes. The demand for Doc Webster's April physical may be rather price sensitive, that is, rather elastic, because there are lots of good substitutes: exams by Dr. Webster in March and May, exams by other doctors in the community, self-help books, television programs and discussions with clinical types at parties. On the other hand, the demand for physical exams by all doctors in this community this year will be considerably less price sensitive because there are fewer substitutes for this service.

This principle has important implications in health care markets. The community-wide demand for physician, or hospital, or prescription drug services may be relatively inelastic. However, health maintenance organizations and preferred provider organizations are not typically concerned with the community-wide demand curve. They are concerned about the demand of services among their subscribers. If these plans are willing to substitute one provider group for another or one hospital for another, they are much more price sensitive. Similarly, if a health care consumer with a large deductible health insurance plan is willing to switch from Dr. Webster to another internist, she has a much greater price sensitivity, and price becomes a more important issue for Dr. Webster.

Greater price sensitivity implies that at a lower price more will be demanded. If folks see that they only have to pay \$20 for Doc Webster's services instead of \$60, for example, they will choose to have more physicals.

The extra physician visits, in the standard economic model, will be less valuable to the patient/consumer. Indeed, the straight forward prediction is that at a \$20 price, consumers will buy physician visits until, in their estimation, the visits only provide \$20 worth of benefit.

Thus, if a health insurance plan pays physicians \$60 for their services, but only requires the patient to pay \$5 for the visit, the last physician visits are likely to cost the insurer \$55, but only yield \$5 of benefit to the insured patient. Because of this, insurers have raised the amounts



they ask patients to pay out-of-pocket to reduce the number of visits for which the benefits don't equal the costs. They have also used "utilization management" tools, such as physician gatekeepers and concurrent review of hospital stays, as another means of reducing the number of visits and hospital days that don't provide enough value for the dollar. The out-of-pocket payment approach assumes that the patient/consumer is able to adequately judge the value of health services. The utilization management approach assumes they are not.

One may be tempted at this point to say that medical care is different from other goods and services. It does not follow the same market forces. People do not have the luxury of considering alternative sources of care. The use of services is often a life or death situation. Further, people lack good information on what to consume, how much to consume, and from whom to consume it. There are elements of truth in all this. But it goes too far. Much of the care we consume is not urgent. We purchase over-the-counter and prescription medicines. We visit dentists and optometrists. We choose to see one physician or another for routine and other non-life threatening reasons. We are admitted to hospitals for discretionary procedures. We put ourselves or our parents in nursing homes. There are numerous examples of health services that we either consume relatively regularly or which friends and family consume sufficiently that we obtain some information on the relative merits of one provider over another.

Further, while we do not have complete information, we can and do seek the advice of physicians. Physicians, acting as less than perfect agents, do have an incentive to provide more services than we would buy if fully informed. But even if such demand inducement does exist, it has to have some limits. The inflation adjusted median income of physicians declined by nearly 9 percent between 1993 and 2000 (AMA 2003). This is inconsistent with unbridled demand inducement and suggests other factors beyond clinical judgment matter.<sup>1</sup>

A second reason for discounting these objections is that the health services market has responded to price incentives. Ironically, one of the reasons we have not searched for lower priced providers and why we may see some physician-inducement is that with insurance, meaningful price differences often are not apparent. This is not to say price differences do not exist. Rather, if a patient has a health insurance policy that promises to pay the bill regardless of which provider he sees, he has no incentive to worry about the price. Thus, one explanation for why prices do not seem to matter is that they have already changed behavior!

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<sup>1</sup> The ability of physicians to induce demand is one of the more acrimonious areas of health services research. For careful reviews see Ohsfeldt (1993) and McGuire (2000). Ohsfeldt concludes that demand inducement is relatively minor in magnitude. McGuire asks, "Are physicians constrained by market demand? The answer is "yes," even while noting that there are several mechanisms physicians have to influence quantity provided" (p. 527). Work by Kenkel (1990) is particularly interesting. He examined 1975-76 National Opinion Research Center data on use of medical services and combined it with data on health knowledge. One would expect that those with better knowledge would be less susceptible to demand inducement. In this sophisticated econometric study he found those with more knowledge more likely to seek care. He concluded, "The finding that more informed individuals are more likely to use care, combined with symptoms-response calculations that all individuals use less medical care than experts believe is appropriate, suggest that people systematically underestimate the marginal product of medical care. Apparently, physicians cannot even convince people to buy enough care, much less induce them to buy more than enough" (p. 594).



# CHAPTER III: PRICE SENSITIVITY OF HEALTH SERVICES

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## a. EARLY STUDIES

The study of price responsiveness in health services has been a study of the effects of health insurance in the market. Health insurance has many features: covered services, the presence of coinsurance rates, copayments, deductibles, stoploss features and, utilization management. Research has largely focused on coinsurance and copayments, with some attention to utilization management. Coinsurance and copayments serve to reduce the out-of-pocket price of care faced by the consumer. A coinsurance rate of 20 percent, for example, means that the patient pays only 20 cents on the dollar for covered services. The insurance company pays 80 cents. A copayment of \$20 means that regardless of the physician's charge, the patient pays only \$20. The general theory of coinsurance and copays is that by lowering the out-of-pocket price of health services they encourage patient/consumers to use more services. The relevant question for policy makers, insurers, employers offering coverage, and for consumers, is how price responsive are health services. This chapter reviews the literature on this question.

The earliest empirical studies provided only comparisons between those with and without health insurance. Eichhorn and Aday (1972) and Donabedian (1976) provide excellent reviews of these works. Studies that focused on the effects of specific coinsurance rates are reviewed by Feldstein (1974) and Newhouse (1978).

There are several problems with examining the effects of insurance coverage on use of services. First, it is wrong to simply compare people with different levels of coinsurance. Those more likely to use services tend to select insurance plans that require them to pay less out-of-pocket. Insurers refer to this as adverse selection. If this is not considered, the effect of the health services price reduction is overstated. Josephson (1966), for example, finds too large a coinsurance effect because he fails to account for this phenomenon in his comparison of the use of physician visits by federal employees in high- and low-option health plans. While there are econometric techniques for dealing with this self-selection problem, researchers have often lacked the data necessary to implement them. This was certainly the case early on. Second, the effect of changes in price tends to be confounded by other plan features. Failure to account for the presence of a deductible, for example, tends to understate the effects of coinsurance on the use of services. Further, there are substantial data problems. Some researchers have estimated state level demand equations that rely on an average coinsurance rate. These tend to be biased because the insurance variable is systematically too high for some of the population and too low for others. Davis and Reynold's work (1976) has this difficulty. Nonetheless, there were some significant early studies.



Scitovsky and Snyder (1972) analyzed a natural experiment in which Stanford University employees faced the introduction of a 25 percent coinsurance rate on physician services when the rate previously had been zero. They compared use by the same employees in 1966 when care was “free” and in 1968, the year after the plan had been put in effect. The result was that the physician office visit rate in 1966 was 33 percent higher when visits cost nothing out-of-pocket than they did in 1968. Ancillary services were 15 percent higher in the year prior to the change. Phelps and Newhouse (1972) also analyzed these data and Scitovsky and McCall (1977) revisited the study with new data five years later. The results were confirmed.

There are problems with a case study, even one as clean as the Stanford University experience. It represents only one firm and one local area; it covers only a single small range of coinsurance; it also attributes all of the change in use to the natural experiment. While there was no obvious reason to believe other factors were at play in the Stanford case, that need not be the case in all natural experiments.

Scheffler (1984) examined the effects of the introduction of a 40 percent physician coinsurance requirement in the United Mine Workers health care plan. Prior to its introduction in 1977 the union had had no cost sharing features in the 30-year history of the benefit. In the first six months of the study, the probability of a physician office visit declined by 28 percent. The study was terminated at that point because the union went out on strike over its health benefits! Unfortunately, it is not at all clear what to make of the results of Scheffler’s study. Was the changed behavior reflective of the new price? Was it some mixture of price and disgruntled union effects? Follow-up work by Roddy et al. (1986) suggested that many of the effects of cost sharing in this population disappeared in the subsequent year.

Phelps and Newhouse (1974) used premium data from four insurers to examine the effect of different coinsurance rates on the premiums, and by extension on use of services. They concluded that as the coinsurance rate declined from 25 percent to 10 percent the premiums increased by 7 percent. As the coinsurance rate dropped from 25 percent to zero, premiums increased by 12 percent. These findings, of course, depend upon the models to underwriters in the four firms used to link the premium to actual claims experience.

Newhouse and Phelps (1976) used 1963 Center for Health Administration Studies (CHAS) individual survey data to estimate the effects on physician visits of no insurance compared to full coverage. They found that physician visits were 25 percent lower in the absence of insurance. This result, however, tended to be biased downward because of errors in the measurement of insurance. Using 1970 CHAS survey data Newhouse et al. (1974) found that those with full insurance tended to use 66 percent more physician visits than did the uninsured. This study, taken together with the Scitovsky studies, led Newhouse (1978) to conclude that full coverage appeared to lead to twice as many physician visits relative to no insurance.

The early work on the demand for inpatient hospital care is even less comforting. There are a number of studies, some studying natural experiments, others using aggregated Blue Cross or hospital data. All have serious methodological flaws. At best one can conclude that paying more out-of-pocket does result in fewer total hospital days. However, the magnitude of the effect varies widely from study to study. It is not even clear from this literature whether the effect is primarily the result of reduced admissions or lengths of stay.

## **b. RAND HEALTH INSURANCE EXPERIMENT**

The review of the early studies makes it clear how limited our knowledge of the price responsiveness of health services had been. However, the Rand Health Insurance Experiment (HIE) provides considerable insight into the price responsiveness of consumers of health services. The study is particularly useful because it largely (but not entirely) avoided the adverse selection problem by randomly assigning families to health insurance plans. It investigated a wide range of



coinsurance rates allowing a consideration of a broader set of price responses, and it was conducted over six sites chosen to be reflective of urban and rural communities in the four census regions. See Manning et al. (1987) for an excellent summary of the experiment and the major findings and Newhouse et al. (1993) for a systematic presentation of this seminal study.

One may legitimately ask about the relevance of a 30-year-old study. Clinical practice and insurance institutions have changed dramatically in the intervening years. However, the RAND-HIE is still the gold standard for examining price sensitivity of health services. This is so for three reasons. First, its methodology is very strong. It overcomes the adverse selection problem in a way that no other study ever has. Second, it examines virtually the whole range of health services that are provided and it does so in a consistent framework. Third, more recent studies have been able to look at the price sensitivity of selected health services, and almost always find results consistent with the older RAND-HIE.

Between 1974 and 1977, families in Dayton, OH; Seattle, WA; Fitchburg, MA; Franklin County, MA; Charleston, SC; and Georgetown County, SC were enrolled into a health insurance program run by RAND under a federal grant. Participating families were randomly assigned to one of 14 different fee-for-service health plans. In Seattle, some participants were enrolled into Group Health of Puget Sound, a health maintenance organization. The plans had coinsurance rates of 0 percent, 25 percent, 50 percent and 95 percent. Within each coinsurance group, families were assigned to stoploss groups of 5 percent, 10 percent and 15 percent of income to a maximum of \$1,000. That is, out-of-pocket expenses for covered services could not exceed the percent of income cap or \$1,000, whichever was lower. While the \$1,000 stoploss feature appears low, in 2004 dollars it would be approximately \$3,800. Virtually all medical services were covered. The experiment also included one plan in which hospital care was fully covered (0 coinsurance), but faced a deductible of \$450 on ambulatory care services (\$1,725 in 2004 dollars). This deductible in current dollars is certainly within the range of deductibles allowed for Health Savings Accounts in the Medicare Reform Act passed by Congress in 2003.

The sample of families was generally representative of the under age 65, non-wealthy population. It excluded those who would be eligible for Medicare over the course of the experiment, those with incomes above \$25,000 (\$95,791 in 2004 dollars) as well as those in the military and veterans with service-connected disabilities. Five thousand eight hundred and nine (5,809) persons were enrolled in the various fee-for-service plans and data on 20,190 person years of experience were collected.

## 1. OVERALL FINDINGS

The major findings with respect to the price responsiveness of health services and inpatient services are summarized in Table III.1. When faced with a \$0.00 out-of-pocket price, people had an 86.7 percent probability of interacting with the health care system. They also used 4.6 physician visits per capita per year. In contrast, those who had to pay 95 percent of the bill (up to the \$3,800 stoploss in 2004 dollars) had only a 68 percent probability of using any health care and used only 2.7 visits per capita. Those who had to pay 25 cents on the dollar had a 78.8 percent probability of using any care and used 3.3 visits per year per capita. Thus, relative to those who had to pay 25 percent, those with free care used nearly 37 percent more physician visits. Use of ambulatory services decreases with higher out-of-pocket prices. The differences between the free plan and any of the others is statistically significant at the 95 percent confidence level.<sup>2</sup> Children's care exhibited about the same price responsiveness for the use of ambulatory services as did adults.

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<sup>2</sup> The differences among the 25 percent, 50 percent, and 95 percent plans were not statistically different at this level.



**TABLE III.1**  
**VARIOUS MEASURES OF PREDICTED MEAN ANNUAL**  
**USE OF MEDICAL SERVICES, BY PLAN**

	<b>Likelihood of Any Use (percent)</b>	<b>Face-to-Face Physician Visits per Capita</b>	<b>One or More Admissions (percent)</b>	<b>Medical Expenses (2004 \$)</b>
Free	86.7 (0.67)	4.55 (0.17)	10.37 (0.42)	2,889 (122.0)
Family Pay				
25 Percent	78.8 (0.99)	3.33 (0.19)	8.83 (0.38)	2,342 (107.8)
50 Percent	74.3 (1.86)	3.03 (0.22)	8.31 (0.40)	2,168 (121.2)
95 Percent	68.0 (1.48)	2.73 (0.18)	7.74 (0.35)	1,985 (101.9)

(Standard errors in parentheses)

Adapted from Manning, et al (1987, Tables 2 and 3)

The results for hospital admissions also displayed evidence of price sensitivity. Those covered under a free-care plan had 128 admissions per 1,000 persons. This was 29 percent greater than those with the 95 percent coinsurance plan. Similarly, inpatient expenditures were 30 percent higher for those who had a free plan.

Unlike the ambulatory results, however, over 75 percent of the reduction in hospital use resulting from higher coinsurance rates was achieved with only the first step of coinsurance (from free care to 25 percent out-of-pocket). This result probably reflects the stoploss features of the plans. Seventy (70) percent of those hospitalized did exceed the maximum out-of-pocket limit imposed. Once this threshold was exceeded, care became free. Thus, the lack of additional reductions in hospital use as a result of higher coinsurance rates may merely reflect the fact that prices quickly became zero.<sup>3</sup> Unlike adult care, children's inpatient use showed almost no price responsiveness.

The final column of Table III.1 is perhaps the most important. It indicates that, in 2004 dollars, those who faced no out-of-pocket prices had average annual total medical expenditures of \$2,889. This was 23 percent more than those who had to pay 25 percent of the bill and nearly 46 percent more than those who had to pay 95 percent (up to the stoploss). Thus, substantially higher out-of-pocket prices result in meaningfully lower medical care expenditures.

More formally, the RAND study provided elasticity estimates of the extent of price responsiveness across types of medical care services and tried to put them in the context of the earlier literature. Essentially, the RAND estimates are in the lower range of the nonexperimental estimates. These results are summarized in Table III.2. In the free to 25 percent coinsurance range, hospital care had an elasticity of -0.17 as did outpatient care, overall. In the coinsurance range of 25 percent to 95 percent outpatient care had an elasticity, overall, of -0.31; inpatient care was estimated to be -0.14. The small response for hospital care at higher levels of out-of-pocket payment, as the reader will recall, reflects the stoploss in place in the insurance plans. The one sentence summary of the RAND-HIE is that the price elasticity of health services is about -0.2. A 10 percent increase in out-of-pocket price reduces use by 2 percent.

<sup>3</sup> It does not appear to be the case that inappropriate admissions were reduced as a result of the cost sharing. Siu (1986) and Lohr et al. (1986) show that the same proportions of what they identify as appropriate and inappropriate admissions were found among those with free care and those with each of the coinsurance rates. Similarly, examining small area use of services, Chassin and colleagues (1987) found that differences in hospital admission rates across areas were not attributable to differences in the rate of appropriate admissions.



**TABLE III.2**  
ELASTICITY ESTIMATES FOR HEALTH SERVICES

Coinsurance Range	Ambulatory				Hospital	All Care
	Acute	Chronic	Well	All		
0-25 Percent	-.16	-.20	-.14	-.17	-.17	-.17
25-95 Percent	-.32	-.23	-.43	-.31	-.14	-.22

Source: Manning et al (1987)

## 2. FINDINGS BY INCOME GROUP

Use of medical services under the various plans also varied by the income of the family. Higher income groups used more ambulatory care, but less inpatient care than did lower income groups. This resulted in a modestly U-shaped relationship between income and medical care expenditures. The findings also suggested that lower income groups were somewhat more responsive to cost sharing. This is consistent with economic theory. Acton (1976) showed that as money price takes on a larger share of the full price, i.e., money plus time price, of a product, people become more responsive to changes in the money price. The time price tends to take on greater share of the total cost to higher income groups. Thus, they should be less money price sensitive. The RAND results indicate that persons in the free plan and with income in the lowest third of the sample had a 34 percent greater probability of using any health service. The difference in use was only 22 percent for those with incomes in the top third.

## C. PRICE SENSITIVITY FOR SPECIFIC HEALTH SERVICES

The RAND-HIE provided estimates of the price sensitivity for many types of health services. In addition, a number of more recent studies have independently estimated service-specific elasticities. In this section, we review the findings for a variety of services.

### 1. HOSPITAL SERVICES

As described above, the RAND study found that free care, relative to the 95 percent plan resulted in 29 percent more admissions and inpatient expenses that were 30 percent higher. Relative to the 25 percent plan, those with free care had 22 percent more admissions but only 10 percent higher expenses. These results suggest that the additional admissions in the free plan relative to the 25 percent plan, were for very short stays.

The RAND study also examined the effects of providing insurance coverage for inpatient services, but not for ambulatory care. It has been argued that such an arrangement encourages people to substitute expensive hospital care for less costly visits to physician offices (Roemer et al. 1975; Helms et al. 1978). This is sometimes called the “penny wise and pound foolish” hypothesis. The RAND results provided no support for this argument. Total expenses were higher for those in the fully free plan compared to those with (essentially) only free hospital care. Ambulatory visits were higher for the fully free plan, but admission rates were higher as well. While the admission differences were not statistically significant, the direction of change is certainly not consistent with the “penny wise pound foolish” view. Instead, it suggests that inpatient use and ambulatory care are, if anything, complements.

Since the RAND-HIE there have been only a few studies that have examined the effects of health insurance on hospital use. Buckmueller et al. (2005) review them and conclude that hav-



ing private health insurance increases adult inpatient use by 0.17 to 0.24 days per year and childhood use by 3 percent to 4 percent, while reducing the avoidable hospitalization rate somewhat. The trouble with these estimates is that they do not account for the size of out-of-pocket payments and they often do not control for the adverse selection problem.

There also has been a dramatic growth in the number of, and enrollment in, managed care plans since the RAND-HIE. The key feature of these plans is their ability to selectively contract with providers. There has been a substantial body of research that has investigated the effects of managed care on the prices negotiated with hospitals and the effects of hospital prices or costs on managed care contracting. See Morrisey (2001) for an extensive review.

The essential argument to arise from these studies is that managed care plans do not contract with all hospitals in the community. They contract with only selected providers and they trade patient volume for a lower price. Thus, estimates of the price sensitivity of managed care plans should be considerably higher than the estimates of overall price sensitivity obtained from the RAND study. In the context of managed care, the plans are buying inpatient services at a particular hospital rather than services at any hospital. Thus, the managed care plans have more substitute sources of care. Unfortunately, no study has been able to obtain actual negotiated price data, so the extent of price sensitivity can only be roughly inferred.

The best of these studies, Melnick et al. (1992), used California data from the late 1980s to demonstrate that PPOs got lower hospital prices when there were more hospitals in the market, when there was more idle hospital capacity, and when the PPO had a larger share of the hospital's book of business. Other studies are less elegant but more recent or cover a broader geographic area. Gaskin and Hadley (1997), for example, examine the effects of HMO penetration in the 84 largest metropolitan markets over the 1985-93 period. They conclude that by 1993, HMOs reduced hospital costs by 7.8 percent, the effect being largest in markets with both a large HMO market share and more rapid HMO growth. Connor et al. (1998) concluded that each 1 percent increase in HMO penetration in 1994 reduced hospital costs per admission and revenue per admission by 1.7 percent. Taken as a whole, these studies suggest substantial price sensitivity for inpatient services when insurance plans are selectively contracting with hospitals.

## 2. HOSPITAL EMERGENCY DEPARTMENT SERVICES

The results for the use of hospital emergency departments (EDs) in the RAND study were similar to those for ambulatory care generally (O'Grady et al. 1985). Persons with free care used about 54 percent more emergency department visits than did persons in the 95 percent plan and about 27 percent more than persons with 25 percent cost sharing. Comparable estimates for emergency department expenses were 45 percent and 16 percent higher, respectively. It was also the case that within the emergency department, the type of services used increased differently as prices were lowered. Relative to no coverage, free care increased the use for less urgent care by 90 percent and more urgent care by only 30 percent. Thus, the less serious services appeared to be the most price sensitive.

Price sensitivity in the use of the emergency department was about the same across income groups. However, controlling for insurance coverage, lower income people tended to use the emergency department more. The authors speculated that this may result from reduced availability of physician offices in low income neighborhoods, or patterns of care that had developed prior to the introduction of the RAND experiment.

Selby et al. (1996) provide a more recent and detailed analysis of emergency department use in an HMO. At the request of some electronics and computer firms, in 1993 Kaiser-Permanente of Northern California introduced a \$25 to \$35 copay for emergency department use for members employed by these firms. Other Kaiser-Permanente members continued to have no copays for ED use. The study compared the change in the number of ED visits before and after



the introduction of the copays for both this affected group and for two unaffected groups. There were no changes in copays for other services. This is a classic “differences-in-differences” evaluation method. The first comparison group consisted of a sample of members stratified by age, gender and area of residence to be similar to those facing the copay. The second comparison group of members was similarly stratified by age, gender and area, but were also employed in the electronics and computer industries.

Overall ED visits per 1,000 persons declined by 14.6 percent among those facing the new copay relative to the change in either control group (statistically significant at the 95 percent confidence level). Moreover, there was no statistically significant difference in visits deemed “urgent” by the investigators. In looking at the severity of diagnosis, the study found the largest relative reductions (20.8 percent to 29.2 percent, depending on control group) in visits deemed “often not an emergency.” Visits that were “always an emergency” showed the smallest relative change (a decline of 9.6 percent and an increase of 7.3 percent depending on control group), but these differences were not statistically different from no change. Interestingly, office visits also declined as a result of the ED copays even though there was no change in copays for such visits. This suggests that ED and office visits, on net, are complements rather than substitutes.

### 3. PHYSICIAN SERVICES

The RAND-HIE found that people with free care had nearly 37 percent more physician visits per capita than did those facing a 25 percent coinsurance rate; their use was 67 percent higher than those who essentially paid their entire bill out-of-pocket.

Cherkin et al. (1989) examined the effects of a \$5 copay introduced in 1985 on the use of physician office visits for Washington state government and higher education employees enrolled in Group Health of Puget Sound. As a control group they used federal government enrollees who did not face the copay. In examining the utilization patterns of two-year continuously enrolled persons, they found that office visits for primary care decreased by an estimated 10.9 percent as a result of the copay. Specialty visits declined by 3.3 percent, optometry by 10.9 percent and total visits by 8.3 percent. However, the effect on specialty visits lacked statistical significance at the conventional levels. The results for primary care were strongest in the first quarter after the introduction of the copay, but stabilized at an 8 percent to 10 percent lower level for the last three quarters of the study. Optometry saw a large decline in use during the first quarter as well, but the effects of the copay disappeared by the fourth quarter.

The authors correctly noted that the small price effect on specialty visits (3.3 percent) was not unexpected since enrollees could see covered medical and surgical specialists only upon referral from a Group Health primary care physician. Thus, these visits were likely to be relatively serious. In general, however, it appears that even in HMOs, enrollee cost sharing has the effect of reducing the use of health care services.

More recent studies have tried to examine the effects of having health insurance or not on physician visits. These studies typically suffer from not being able to account for potential adverse selection among those with coverage, although the authors often go to great lengths to control for observed differences across individuals and groups. Given their comparisons, the 67 percent higher use in the RAND study by those with free care relative to the 95 percent plan is the appropriate benchmark.

Buchmueller et al. (2005) provides a review of these studies. Overall, for adult ambulatory use the studies find having coverage to be associated with one to two additional physician visits per year. This is a pretty narrow range around the 1.85 additional visits reported by the RAND study. Spillman (1992) examined the presence of all-year private coverage and concluded that coverage increased visits by men by 106 percent and women by 84 percent. Using an analogous design, Marquis and Long (1994/95) found visits to increase by 76 percent overall.



Long et al. (1998) found visits to increase by 35 percent. Other studies made comparisons with part-year private coverage, coverage through Medicaid, and use of specific ambulatory services other than physician visits.

Chiropractic services appear to be more price sensitive than physician visits (Shehelle et al. 1996). The RAND study found that free care relative to the 25 percent plan increased expenditures on chiropractic care by 132 percent. There was essentially no additional effect of higher coinsurance rates.

#### 4. DENTAL SERVICES

The 1980s saw considerable research into the price responsiveness of dental care, with little work, at least with U.S. populations after that time. Simple comparisons of an insured population with national average dental usage suggested that insured populations consume 33 percent more dental services (Grembowski et al. 1985). Multivariate work by Manning and Phelps (1979) used 1970 survey data and concluded that full coverage for dental services, compared to no coverage, would result in dental service usage over two times higher for adults and three times higher for children. Using the same data set, Conrad (1983) found that the elderly would increase their dental visits by 54 percent if they moved from no dental insurance to a plan which had no out-of-pocket payment for dental services.

Examining 1975-79 data from insured populations Grembowski and Conrad (1984) found that reducing coinsurance from 20 percent to no out-of-pocket payment increased basic dental expenditures by 36 percent. They also found that basic and orthodontic dental services were complements. In contrast, Hay et al. (1982) found that among a 1978 population of insured individuals dental care was relatively insensitive to price. A 10 percent increase in out-of-pocket expense was associated with a 2 percent reduction in dental visits.

Again, the cleanest study is the RAND Health Insurance Experiment (Manning et al. 1985). Using the free care, 25 percent, 50 percent, and 95 percent coinsurance rate insurance plans with stratified random assignment, they found that in steady state, participants in the free plan had 34 percent more visits and 46 percent higher expenses than did enrollees in the 95 percent coinsurance plan. Again, most of the effect was observed in the difference between free care and a 25 percent coinsurance. Also, nearly two-thirds of the response was attributed to number of visits per enrollee, the remainder to expenditures per user. Thus, cost sharing tended to affect the decision to seek treatment much more than the expenditure once treatment was sought. Preventive services were about as price sensitive as general dental visits; in contrast, prosthodontics, endodontics and periodontics were more price sensitive.

Dental care seems to be much more sensitive to a transitory effect of cost sharing than does medical care more generally. The RAND study found that in the first year of coverage the difference in use between the free plan and the 95 percent plan was nearly twice as large as in the second year. However, in the second year, i.e., the steady state, dental care was less price sensitive than other health services.

Conrad et al. (1987) and Grembowski et al. (1987) have analyzed survey data on the effects of coinsurance on the use of dental services among adults and children, respectively. Their population is one covered by dental insurance (Pennsylvania Blue Shield in 1980) so the issue is the effects of differences in the coinsurance rate within an insured population. They found little money price, i.e., coinsurance, sensitivity among this insured population. The result is consistent with the RAND study where most of the price sensitivity was found between free care and a 25 percent coinsurance rate with little additional sensitivity at higher levels of cost sharing. These findings are also supported in work by Muller and Monheit (1987). Like the RAND study, Conrad and Grembowski studies found increased price sensitivity for more extensive, i.e., expensive, services. It also appears to be the case that children's basic dental services



were less price sensitive than adult care. As with the RAND study, these researchers found substantial transitory effects on dental usage.

A particularly interesting aspect of the Conrad et al. study was a consideration of people with dental coverage through community-rated and experience-rated group dental plans. Community-rated plans are more likely to be subject to adverse selection because the single average price will over charge low utilizers and under charge high utilizers. The results indicated that expenditures were 37 percent and 90 percent higher, respectively, for primary insured and spouses in the community-rated plans.

## 5. AMBULATORY MENTAL HEALTH SERVICES

Ambulatory mental health care services are considerably more price sensitive than ambulatory medical services generally. In a natural experiment Wallen et al. (1982), cited in Frank and McGuire (1986), found that the introduction of a \$5 copayment per visit reduced mental health visits by United Mine Workers medical plan enrollees from 110 visits per 1000 to 60. Frank (1985) used aggregate data and concluded that the price elasticity with respect to ambulatory mental health visits was -1.0 to -2.0. These high levels of price sensitivity can explain why mental health coverage has historically had high levels of cost-sharing and limits on use.

McGuire (1981) was the first to use econometric techniques on individual level data. He analyzed data from a survey of heavy users of psychiatric services and found a price elasticity of greater than -1.0 for actual and anticipated visits. This suggests that a 1 percent increase in price would result in a more than 1 percent reduction in the number of visits. Later work by Horgan (1986) and Taube et al. (1986) also use econometric techniques, the former analyzing data from the 1977 National Medical Care Expenditure Survey for specialty providers, the latter using the 1980 National Medical Care Utilization and Expenditure Survey for all mental health visits.

Horgan found that a 10 percent increase in the coinsurance rate led to a 2.7 percent reduction in the probability of any use. Visits and expenditures, conditional on some use were much more price responsive. A 10 percent increase in the coinsurance rate reduced visits by 4.4 percent and expenditures by 5.4 percent. These results suggest that the intensity of mental health use is more responsive to price than is simple use of services. This is in contrast to general ambulatory medical services, where the probability of use is more responsive.

Taube et al. found no significant relationship between price and the probability of using mental health services. However, their findings with respect to the number of visits, conditional upon use, were more in keeping with Frank and McGuire. They reported a price elasticity of nearly -1.0. Those encountering less than 25 percent of the price had 6.3 annual visits on average. Those paying 75 percent or more of the price of outpatient care used only 3.5 visits on average. Thus, use of care, by those who used some care, would likely more than double if full payment were replaced by free care.

These studies, though often sophisticated econometrically, still face the potential of overstating the degree of price sensitivity because of adverse selection. Indeed, the early work from the RAND Health Insurance Experiment suggested as much (Manning et al. 1984). It concluded that ambulatory mental health care was no more price sensitive than other medical care. However, this conclusion was challenged by Ellis and McGuire (1984). They argued that those who used mental health services tended to use a lot of it. As a consequence, users would generally exceed the stoploss provisions of the RAND experiment. Once this occurred, these individuals would face a marginal price of care no different from the free care plan. If this is the case, individuals and their families would base their consumption on the marginal price of their expected utilization. For reasonably high utilizers, this implies consuming care as though the services were free. In subsequent work they showed that use of mental health services was very sensitive to the provisions of the insurance contract. Patients appeared to time visits to take advantage of coverage (Ellis and McGuire 1986).



The RAND group revisited their data and examined within-year episodes of mental health use (Keeler et al. 1986; Wells et al. 1990). They concluded that free care would result in a quadrupling of mental health care expenses relative to no insurance. Further, the response between 50 percent out-of-pocket payment and 95 percent was about twice as price responsive as general medical care. The response between 25 percent coinsurance and free care was about equal to that of medical care.

The use of mental health care in the presence of expanded insurance coverage can be described as subject to a slow build-up. With dental coverage, it will be recalled, there was an immediate burst of use followed by a lower, sustained level. With mental health care, use increased over time from a relatively low initial level. Keeler and his colleagues (1986) speculated why mental health care is more price responsive. “The additional users may be better informed and simply want help only if the price is right. Alternatively, they may not know how mental health care would help them, or they may be deterred by real or imaginary stigmatization, until coverage legitimizes taking a chance on use” (p.166).

Ultimately, the high price sensitivity of mental health services suggests why insurance coverage for these maladies tends to be different than for medical conditions. Simple use of copays increases the use of services substantially relative to no coverage. Thus, it is common to see limitations on the number of mental health visits and more aggressive use of non-price rationing devices in managed care plans. See McGuire (2000) for a discussion.

## 6. PRESCRIPTION DRUGS

Early studies of prescription drugs found that the quantity demanded approximately doubled when drugs became free under a full coverage plan. Greenlick and Darsky (1968) compared prescription drug use among those paying approximately a 9 percent coinsurance rate with a random sample of the community with no coverage. Expenditures by those with the near full coverage was double that of the uninsured. Smith and Garner (1974) studied the introduction of a Medicaid drug benefit in Mississippi in 1970. Comparing drug use for the three months prior and three months after the introduction they found that full coverage led to a 75 percent increase in prescriptions per person and a 124 percent increase in drug expense per person. Even allowing for adverse selection in the first study and some anticipatory behavior in the second, it appears that prescription drug demand was very sensitive to price.

The Rand Health Insurance Experiment data did not bear this out. In general, they found that prescription drugs were about as price responsive as physician services. Using first-year data from only four of the experiment’s six sites, Leibowitz et al. (1985) found that prescription drug expenses per person were 76 percent higher for those in the free plan relative to those with 95 percent coinsurance. Relative to those in the 25 percent coinsurance plan, those in the free plan used 32 percent more. These results were largely driven by the number of prescriptions filled rather than differential costliness of the drugs received. Those in the free plan filled 50 percent more prescriptions than did those in the 95 percent plan and 23 percent more than those in the 25 percent coinsurance plan.

Pharmaceutical use is certainly one of the areas where clinical practice has changed the most since the RAND-HIE. Prescription drug coverage now often includes 2- and 3-tier programs in which subscribers pay one low copay for generic drugs, perhaps \$10, a higher copay, perhaps \$20, for brand name or “preferred brand name” drugs, and a still higher copay for non-preferred brand drugs. Several recent studies have investigated the effects of these copayment systems on prescription drug use.

Motheral and Fairman (2001) examined the effect of introducing a 3-tier drug coverage program among employers offering a PPO over the 1997 through 1999 period. In a differences-in-differences model, they examined generic copay changes from \$7 to \$8 per prescription, \$12 to \$15 for preferred brands and \$12 to \$25 for non-preferred branded drug prescriptions. There



was essentially no reduction in drug use in the first two tiers. In the third tier, the copay elasticity with respect to utilization was -0.21 with respect to utilization and -0.24 with respect to total tier-three pharmaceutical expenditures. This is consistent with the RAND findings.

Joyce et al. (2002) also examined drug benefit copays over the 1997-1999 period, but used an unnamed health benefits consulting firm's data on 25 firms with over 702,000 person years of data. The study essentially compares those with one regime of copays relative to another controlling for sociodemographic characteristics and chronic health conditions of the subscribers. The overall findings are summarized in Table III.3. Higher copays did reduce overall drug spending substantially. Those in a 1-tier plan, i.e., one with a single copay for all covered drugs, which had a \$10 copay had expenditures that were 22.3 percent lower than those with only a \$5 copay. Indeed, in every tier, for each drug type, those with higher copays had lower drug expenditures. The price elasticities ranged from -0.22 to -0.40 with the 3-tier nonpreferred brand name prescriptions being the most price sensitive. These results are nearly twice as price sensitive as those found in the RAND experiment.

**TABLE III.3**  
**PREDICTED AVERAGE ANNUAL PRESCRIPTION DRUG SPENDING PER MEMBER**

	1-Tier Copay		2-Tier Copay		3-Tier Copay	
	\$5	\$10	\$5 Generic \$10 Brand	\$10 Generic \$20 Brand	\$5 Generic \$10 Preferred \$15 Nonpreferred	\$10 Generic \$20 Preferred \$30 Nonpreferred
<b>All drugs</b>	\$725	\$563	\$678	\$455	\$666	\$436
<b>Generic</b>	91	69	71	41	81	53
<b>Preferred</b>	571	448	534	367	518	343
<b>Nonpreferred</b>	63	46	73	47	67	40

All values in 1997 dollars.

All horizontal comparisons within tiers are statistically significant at the 95% confidence level.

Source: Joyce et al (2002)

The Joyce et al. study also demonstrated expenditure reductions in moving from a 1- to a 2- or a 2- to a 3-tier drug plan. In Table III.3 moving from a 1-tier plan with a common \$10 copay to a 2-tier plan with \$10 and \$20 copays reduced average spending from \$563 to \$455, a 19 percent reduction. Moving from a 2- to a 3-tier plan with \$10, \$20, and \$30 copays were estimated to reduce expenditures by an additional 4 percent.

The shift from non-preferred to preferred brands is one of the key objectives of 3-tier pharmacy benefits plans. Recter et al. (2003) examined the use of ACE inhibitors, proton pump inhibitors, and STATINS in four health plans during 1998-1999. They found that the presence of an average \$18 higher copay for nonpreferred drugs was associated with a 3.3, 8.9 and 6.0 percentage point increase, respectively, in the use of the preferred brands in each drug class.

Finally, Goldman et al. (2004) examined the effect of a doubling in the copay associated with the use of eight classes of therapeutic drugs. They examined the claims data from 30 employers with 52 health plans over the 1997-2000 period. Reductions in days of prescription use across the 8 classes ranged from 45 percent for nonsteroidal anti-inflammatories to 25 percent for antidiabetics. They concluded, "The use of medications...which are taken intermittently to treat symptoms, was sensitive to copayment changes....The reduction in use of medications for individuals in ongoing care was more modest. Still, significant increases in copayments raise concern about adverse health consequences because of large price effects, especially among diabetic patients" (p. 2344).



The RAND team also investigated the extent to which over-the-counter (OTC) drugs were substituted for prescription drugs. Given greater cost sharing one might expect consumers to use OTC drugs as a substitute for prescriptions or physician visits. Leibowitz (1989) found no evidence of this. Based upon biweekly reports filed by the insurance experiment participants, she found that OTC drug use was relatively low and that it was complementary with prescription drug use. Those with lower out-of-pocket insurance plans used more OTC drugs than did those facing higher out-of-pocket prices, even though OTC drugs were generally not covered by the insurance experiment. These results are consistent with studies that report physicians often recommend OTC drugs. Indeed, Koch (1983) reported that, based upon 1981 data, aspirin was sixth among drugs most frequently ordered or provided in a physician's office.

There have been few other studies addressing this issue, probably because of the difficulty in getting OTC utilization data. However, as part of their study of drug copays and chronic health conditions, Goldman et al. (2004) found that those drugs with close OTC substitutes had larger reductions in prescription drug use than did those without close substitutes. A doubling of the prescription copay led to a 32 percent reduction in the days of drug treatment supplied for medications with close OTC substitutes, such as antihistamines, but only a 15 percent reduction for those with no close substitutes.

## 7. NURSING HOME SERVICES

There has been little analysis of the private demand for nursing home and related long-term care services. Historically, this is understandable because much of nursing home care was provided through Medicaid. While this continues to be the case today, the advent of a large number of relatively affluent baby-boomer retirees suggests that the price sensitivity of nursing home and other long-term care services will be increasingly relevant for long-term care management and policy decisions.

Early work by Scanlon (1980) and Chiswick (1976) used metropolitan and state level data. Only Scanlon examined private payers distinct from Medicaid subsidized payers. However, both found substantial price sensitivity, elasticities of -1.1 and -2.3 respectively implying that a 10 percent reduction in nursing home prices would increase volume by 11 percent to 23 percent. The work, however, can be criticized for its aggregated units of analysis and the potential that the results are overstated by a failure to account for spend-down conditions commonly in force during the period. In an analysis of 1983 Wisconsin facility specific data, Nyman (1989) also found substantial price sensitivity; an elasticity of -1.7.

In more recent and sophisticated work, Reschovsky (1998) examined the 1989 National Long Term Care Survey to examine the effect of Medicaid eligibility on nursing home use among older persons with disabilities. As part of this he estimated a series of private demand equations. Price elasticity among private payers was -0.98. The married disabled had an elasticity nearly two and one half times higher (-2.40), presumably because married individuals have access to relatively inexpensive informal care provided by a spouse. Unmarried individuals had much lower price sensitivity (elasticity of -0.53) as did those with high levels of disability. In both cases there would seem to be fewer viable substitute sources of care and therefore less price responsiveness. Care must be used in using these estimates as they often lacked statistical significance at the conventional levels.

Mukamel and Spector (2002) use 1991 New York State data on for-profit nursing homes to impute a degree of price sensitivity derived from marginal cost estimates. They find firm specific elasticities in the neighborhood of -3.46. A 10 percent decrease in price would increase demand at a given nursing home by nearly 35 percent. As with managed care plans' demand for inpatient services from a specific hospital, one would expect firm specific demand for nursing homes, typically, to be much larger than market-wide demand.



In one of the very few efforts to look at price sensitivity for other types of long-term care services, Nyman et al. (1997) examined the extent to which long-term care service users substitute adult foster care for nursing home care. A simple regression of the number of foster care residents in Oregon counties in 1989, controlling for other factors indicated that a nursing home lost 0.85 residents for every additional foster care resident. In addition, an analysis of the demand for foster care demonstrated substantial price responsiveness in the private market. A 1 percent increase in the average adult foster care price was associated with a 5.2 percent decrease in day care residents.

The number and rigor of the long-term care studies do not match those of other service areas largely because of an inability to account for adverse selection and, certainly the lack of a controlled experiment of the nature of the RAND study. Thus, these finds inevitably overstate the extent of price sensitivity. Nonetheless, by the standards of acute care services, the private demand for long-term care services appear to be very price sensitive.

## d. DEDUCTIBLES

With the passage of the Medicare Reform Act in late 2003 and its provisions for “Health Savings Accounts” (HSAs), attention has turned to the effects of higher deductibles on health care spending. Individuals and employers are able to establish tax sheltered spending accounts that allow unused balances to be rolled over from one year to the next if they have an eligible health insurance plan. Among other things an eligible health insurance plan must include a deductible of at least \$1,000 per individual. This amount is to be adjusted annually for inflation under terms of the legislation.

The effect of a deductible depends upon the nature of coverage once the deductible is satisfied. Suppose a consumer faced an annual deductible of \$500 and must pay an out-of-pocket copay of \$20 for each physician visit once the deductible is satisfied. If she knew with certainty that she would satisfy the deductible, then she would consume as though the price of a doctor visit was \$20. If she knew she wouldn't satisfy the deductible, then she would consume as though she had to pay the full price of the visit, perhaps \$60 per visit. The higher the deductible, the less likely she is to satisfy it and the more likely she is to act as though she were paying the full price for medical services.

There has been virtually no empirical research on the effects of deductibles on medical usage, at least in the U.S. The RAND Health Insurance Experiment is again, the exception (Manning et al. 1987). As part of the experiment some participants were enrolled in the 95 percent plan. In this plan people paid 95 percent of every medical bill until they had spent 5 percent, 10 percent, or 15 percent of their family income (depending upon the plan) or \$1,000, whichever was lower. This is essentially a plan in which participants faced a deductible of \$1,000 and afterward paid nothing out-of-pocket. In 2004 dollars, this is equivalent to a deductible of \$3,200.

The results of the RAND study shown in Table III.1 indicate that the presence of a \$3,200 family deductible followed by free care only after the deductible is met resulted in over a 31 percent reduction in medical spending relative to a plan with free care.

In recent work, Van Vliet (2004) reported the effects of alternative deductibles in private health insurance plans in the Netherlands in 1996. In the Netherlands (at least during this time period), about 32 percent of the population, i.e., those with higher incomes, voluntarily bought private health insurance from a number of different firms. The benefits packages differ largely with respect to the size of the deductible. Once the deductible is satisfied there is little if any out-of-pocket payment for the wide range of services considered in Van Vliet's analysis. Considerable care is taken in the analysis to use a family's prior health care expenditures when deductibles were not available as predictors of what expenditures would have



been had the deductibles not been present in 1996. Table III.4 presents the findings, converted to 2004 U.S. dollars.

**TABLE III.4**  
EFFECTS OF DEDUCTIBLES ON HEALTH SPENDING

Deductible in 1996 Dutch Gilders	Deductible in 2004 U.S. Dollars	Expected Expenses (2004 \$)	Effect of Deductible on Expected Expenses (2004 \$)	Effect of Deductible as Percentage of Expected Expenses
0-100	0-69	\$1,780	\$21	1.2%
101-350	70-240	\$2,029	-\$166	-8.2%
351-750	241-515	\$1,120	-\$203	-18.1%
751-1250	516-858	\$1,286	-\$156	-12.1%
1251-1750	859-1201	\$1,748	-\$252	-14.1%
>1750	>1201	\$2,130	-\$594	-27.9%
Total		\$1,722	-\$103	

12/31/1996 Exchange Rate: INLG = .57\$. 1996 to 2004 US CPI-All items inflation adjustment = 1.204

Source: Van Vliet (2004)

The highest range of deductibles, more than 1,750 Dutch Guilders, is roughly equivalent to a deductible of more than \$1,200 in 2004 U.S. dollars. Those Dutch residents with this level of deductible were estimated to have reduced their medical care spending by \$594, nearly 28 percent. This compares with the RAND results that found a 31 percent reduction for a deductible of \$3,200. Given the differences in the health systems and the details of the range of the Dutch deductible, these results are remarkably consistent.

If so, the Van Vliet study suggests that deductibles in the neighborhood of \$1,000 U.S. dollars could reduce medical care expenditures by about 14 percent. Care must be taken in this generalization, of course. First, the Dutch study only applies to upper income groups with such coverage. Second, however, if catastrophic coverage plans with HSAs require copays for the use of health services once the deductible is satisfied, the savings would be somewhat greater.

## e. COST SHARING AND PROVIDER SEARCH

The presence of health insurance coverage can be expected to influence the price that consumers pay for services. When consumers pay the full price for the services they purchase, they keep all of the gains that arise from efforts to seek out lower prices. When provided with little cost sharing in an insurance plan, consumers have reduced incentives to search for lower prices — they only receive a fraction of the gains. See Phelps (2000) for a detailed discussion of the underlying economics of search as it applies to health care.

The interest in consumer directed health care seeks to encourage consumer search for greater valued, or at least, lower priced health services by requiring that consumers pay all of the first dollar costs of care through a large deductible. This makes the topic of particular interest.

Unfortunately, here too there has been little empirical research. Newhouse and Phelps (1976) analyzed 1963 survey data on the use of medical services collected by the Center for Health Administration Studies. Examining physician fees, they found that a 10 percent increase

in out-of-pocket payment resulted in a 1.5 percent to 2.0 percent reduction in the price of physician services used. This implied that a move from no coverage to full insurance for physician services would increase fees by 18 percent.

Sloan (1982) used 1977 and 1978 Physician's Practice Cost Surveys conducted by the National Opinion Research Center. Like Newhouse and Phelps he used a two-stage model to examine the effects of insurance coverage on various physician fees. He concluded that a 10 percent increase in the proportion of insured patients increased follow-up office visit fees by 1.8 percent. A follow-up hospital visit fee increased by 0.3 percent. In contrast, Grembowski and Conrad (1986) examined 1980 data on persons with dental coverage. They found that differences in the extent of coverage had virtually no effect on the prices paid for dental services.

The RAND Health Insurance Experiment also examined the effect of coinsurance on provider choice. It examined the use of specialists and the fees charged (Marquis 1985). The results indicated essentially no statistically significant effects of differences in coinsurance on the decisions to use a private physician, a specialist rather than a generalist, or an internist rather than another specialist. The study did find statistically meaningful differences in physician prices, but these effects were so small as to be effectively meaningless. The study also investigated physician choice and fees by that subset of enrollees who reported that they had changed their usual source of care. These results were similar to those of the entire sample.

These findings suggest, first, that the relatively large effects that Newhouse and Phelps (1976) and Sloan (1982) found were driven in large part by adverse selection. Those with greater likelihood of using health care chose health insurance or health insurance plans with less cost sharing.

While the literature is mixed and tends not to strongly support the search theory, it is important to note the limitations of the literature. First, while less cost sharing provides reduced incentives for price search, it subsidized the search for higher quality care. Thus, the minimal effects of the RAND study may reflect some offsetting effects. Second, limitations on advertising in the medical care sector are well known. If price information were made more readily available the results might be different. The classic studies of advertising for optometric services by Benham (1972) and Feldman and Begun (1978) support this view.<sup>4</sup> Marquis (1985) did try to address this issue indirectly. However, she found that those with higher education and, presumably, better ability to use information had similar specialty and physician fee responses to different coinsurance levels as did the others. Finally, the short duration of the RAND experiment may have not given enrollees sufficient incentive to seek out alternative providers.

## f. SUMMARY

The story that emerges from this rather extensive literature is that there is moderate price sensitivity in the use of health services. Described in terms of elasticities, economists' measure of price responsiveness, health services in general have an elasticity of about -0.2. That means that a 1 percent increase in the price of health services generally, will result in about a two-tenths of 1 percent reduction in use. Stated differently a 10 percent increase in price reduces use by about 2 percent. To put this in some context, gasoline has an estimated elasticity of -0.5, new cars -1.2 to -1.5 and foreign travel -4.0 (Reynolds 1976). Thus, health services are among the less price responsive consumer goods.

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<sup>4</sup> Benham (1972) found that the price of eyeglasses was 25 percent to 100 percent higher in states that prohibited advertising. Feldman and Begun (1978) used 1976 data to examine the effects of advertising bans on the price of optometric examinations. Prices were 16 percent higher in states that banned optometric and optician price advertising.



This is certainly not to say that prices do not matter. Even relatively small price elasticities can have large effects on use of services when the price change is large. The growth in health insurance over the last several decades has in many cases reduced the money price by nearly 100 percent. The provision of full coverage insurance for the currently uninsured is a large effective price reduction and should have relatively large effects on use. Similarly, doubling typical insurance copays to \$30 to \$50 will have more than trivial effects.

Finally, the price responsiveness of different health services is different. The salient findings from the empirical literature are summarized below. Given the methodological strength of the RAND experimental studies, our knowledge rests heavily on their work.

- **Hospital services.** Hospital care is the least responsive to price. Full coverage compared to no coverage increased admissions by about 29 percent and total inpatient expenses of 30 percent. Almost all of this effect was found in the difference in usage between 25 percent coinsurance and free care. This is an understatement of the full effect of cost sharing on the use of hospital services, however, because the RAND experiment made hospital care free once a family had incurred out-of-pocket expenses of \$3,200 dollars (in 2004 terms).
- **Substitution of hospital for physician services.** There is little evidence that the failure to insure ambulatory physician services leads to higher hospitalization rates or expenses. The RAND study suggests that hospitalization rates actually decline, although the study was only conducted over a four-year period.
- **Emergency department services.** Full coverage relative to no coverage increased visits by 54 percent and expenses by 45 percent. A free plan resulted in 27 percent more visits and 16 percent more expenditures than a plan with 25 percent coinsurance. Free care resulted in about a 90 percent increase in less urgent visits but only a 30 percent increase in visits for more urgent cases. Thus, emergency department cost sharing appears to reduce less urgent cases much more than urgent ones.
- **Price sensitivity by income level.** In general, higher income groups were found to be less sensitive to price changes than were lower income groups.
- **Children vs. adults.** The use of ambulatory services by children was about as price sensitive as was adults' use. However, hospital services tended to be almost insensitive to differences in price, at least under the conditions of the RAND health insurance experiment.
- **Physician services.** Generally the introduction of insurance providing full coverage increased both visits and expenditures by about two-thirds, controlling for other factors. The effect of moving from a 25 percent coinsurance rate to free care accounted for about one-half of the overall change.
- **Dental services.** Dental services are subject to a large transitory effect when coverage was introduced. The first year of coverage had price effects that were twice as large as subsequent use. In the steady state full coverage increased visits by 34 percent and expenses by 46 percent. Most of this effect was seen in the differences in usage between 25 percent coinsurance and free care. Preventive services were about as price sensitive as basic care. More expensive services were more price sensitive.
- **Mental health services.** Greatest price sensitivity was found in outpatient mental health services. Full coverage relative to no coverage increased expenditures 300 percent. The increase in expenditures between those with 25 percent coinsurance and free care was about one-third more, the same as for ambulatory medical services. There was also evidence that, unlike dental care, mental health service use increased over time.



- **Prescription drugs.** Prescription drugs appear to be about as price sensitive as ambulatory medical services. In the RAND experiment full coverage relative to no coverage increased the number of prescriptions per person by 50 percent and increased drug expenditures by 76 percent. Prescription drugs tend to be used with physician visits and are not used as substitutes for additional visits. Further, over-the-counter drugs also appear to be economic complements to physician services. The evidence suggests that they, too, are used with physician services, not in place of those visits. More recent research has focused on differential copayments for generic, preferred brands and nonpreferred brands. The research demonstrates that copays at each tier reduce drug use, and higher copays for nonpreferred relative to other tiers leads to substitution away from the nonpreferred categories. The limited evidence suggests that copays had a bigger effect on drugs taken intermittently to treat symptoms than on those taken for ongoing care. There is some concern about the health consequences for these groups of people particularly, but little research in this area currently exists.
- **Nursing home services.** Remarkably little research has addressed the price sensitivity of nursing home use. The very limited existing research suggests that the price elasticity of demand by private payers may be -1.0 or higher, particularly for older married persons. One study suggests that there is substantial cross-price sensitivity between adult foster care and nursing home care. Unfortunately, there has been no RAND experiment equivalent in this sector and the existing estimates may be subject to substantial bias resulting from adverse selection.
- **Deductibles.** Deductibles have become a potentially more important insurance tool with the advent of consumer-directed health care plans and HSAs. The RAND experiment found that a \$3,200 family deductible (in 2004 dollars) followed by free care reduced medical care expenditures by 31 percent. More recent work from the Netherlands found reductions of 28 percent for a similar insurance program with a \$1,200 or more deductible (in 2004 U.S. dollars). This study suggests that a family deductible of \$1,000 U.S. dollars might reduce spending by approximately 14 percent.
- **Provider search.** Higher out-of-pocket payments may lead consumers to search for higher value or at least lower cost providers. The existing evidence is rather old, but suggests that the effects on price are small.



# CHAPTER IV: HEALTH INSURANCE

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Life is a gamble. Suppose we were to flip a fair coin. If it comes up heads you lead a healthy normal life. If it comes up tails, you become seriously ill. Medical science can return you to the healthy state, but medical science isn't cheap. Treatment will cost you \$20,000 plus some associated pain and suffering. Are you willing to buy a health insurance policy to attenuate the financial consequences of your potential bad luck?

The correct response is “maybe.” It depends upon the price of the policy. The price of the policy is determined in the market for health insurance. Health insurance, like health care, is regarded as just another good by economists. Like health services, and most other goods, the market for health insurance has some quirks that make it interesting and somewhat different from textbook examples. When insurance is the good under analysis, the product is the promise to pay according to the “details” of the insurance contract, if the bad state of the world should occur. That state of the world is, at least in part, random — like the flip of the coin.

Friedman and Savage (1948) and Ehrlich and Becker (1972) view the price of insurance as reflecting the maximum an individual would pay, over and above the expected loss, to avoid the consequences of the loss. The expected loss is the amount one would expect to pay, on average, if the event occurred many times. Thus, the expected loss for 100 flips of our fair coin is \$10,000 on each flip. Sometimes you will have to pay nothing; you win. Sometimes you will have to pay \$20,000; you lose. On average you pay \$10,000 per flip.

Again consider the question of insurance against the financial consequences of the coin flip. Are you willing to pay more than \$10,000 to avoid the coin flip? If so, you are like most of us and are risk averse. You are willing to pay more than the expected loss to avoid the consequences of the loss. Stated somewhat differently, you are willing to pay some “loading fee” over and above the actuarially fair premium to avoid the consequences.

Insurance exists because there are enough of us who feel that way. The extra amount we are willing to pay, often called a “risk premium,” means that there is the potential for someone to come in and get 100 or more of us to buy an insurance policy from her. Her “claims costs” will be \$10,000 on each policy, on average. The risk premiums we are willing to pay will compensate her for running the program.

## a. HOW MUCH COVERAGE TO BUY

Our simple insurance model suggested that many of us would pay a risk premium (plus the expected loss) to avoid the consequences of the coin flip. What is the maximum amount you would be willing to pay? It depends upon four factors: how “chicken” you are, how much you would lose if the tails occurred, what the chances are that the tails will actually appear, and your wealth position. How chicken you are is merely a reflection of your unwillingness to bear risk. The more chicken, that is, the more risk averse, the larger will be the risk premium and the more you are willing to pay to get coverage. This raises an important point. Everyone does not have the same demand for insurance. Some will prefer broader and/or deeper coverage. Others will prefer to buy much less. Some may prefer to buy none at all.

The size of the possible loss is also relevant. If the possible loss were only \$200 you may be willing to pay only \$10 plus the \$100 expected loss. At \$20,000 you may be willing to pay



\$4,000 plus the \$10,000 expected loss and at \$200,000 you may be willing to pay \$10,000 plus the expected loss of \$100,000 to avoid the consequences. As the size of the possible loss increases, the risk premium you are willing to pay increases. Thus, you are more likely to buy health insurance to protect against large losses than small ones.

Next, the maximum amount you are willing to pay depends upon the probability of the event occurring. If instead of a 1 in 2 chance of a bad outcome, suppose the chance were only 1 in 100,000. Then you would be willing to pay only a very small risk premium, perhaps 1 cent in addition to the 20 cent expected loss to avoid the gamble. Surprisingly, the model also suggests that you would not pay much above the expected loss for a policy that insured against an event that was virtually certain to occur. Suppose both you and the insurer know that the probability of you incurring the \$20,000 loss is 999 in 1000. The expected loss is therefore \$19,980. How much more than \$19,980 would you be willing to pay to avoid the gamble? I wouldn't pay much either.<sup>5</sup>

Fourth, the maximum amount you are willing to pay depends upon your wealth position. Folks with higher wealth are able in some sense to “self-insure” against losses that the rest of us might buy insurance to protect against. I call this the “Circuit City Hypothesis.” Whenever I have purchased an electronic device, the clerk will ask if I wish to buy the extended warranty. She is asking if I want to buy insurance. I think one could test the wealth hypothesis by simply knowing the zipcode in which a customer resides and whether they purchased the extended warranty. From the zipcode one could go to recent Census data and determine the average household income in the zipcode; this serves as a proxy for wealth. Insurance theory predicts that those in the more affluent zipcodes will be less likely to buy the extended warranty.

This simple model is the basis of the demand for health insurance. In the absence of employers, tax subsidies and the like, we expect to see four sorts of behavior:

- People who are more risk averse will buy more health insurance;
- People will be more likely to buy insurance against events that have large financial consequences;
- People will be less likely to buy insurance for events that are very unlikely or very likely to occur; and
- People will be less likely to buy insurance as their wealth position increases.

## b. EMPLOYER-SPONSORED COVERAGE

The analysis of the demand for health insurance is complicated by the fact that most people in the U.S. get their insurance through the work place. The reason for this is two-fold: employees value health insurance and it is less costly when purchased through an employer. Both points are important. Employees do value health insurance. A 1991 Gallup poll indicated that 64 percent of respondents indicated that health insurance was the single most valued employment fringe benefit (Wall Street Journal 1991). More recently, MetLife reported that in 2004, 81 percent of full-time employees ranked medical benefits as the most important. Vacations ranked second

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<sup>5</sup> It is essential to note that both the insurer and the policy holder have the same information in this example. As consumers we would like the insurer to think that the odds are 50/50 when they are actually 999/1000. We would clearly pay a lot more than the expected loss associated with the 50/50 chance of a \$20,000 loss to avoid what we know to be the 999/1000 chance of a loss of \$20,000. When the buyer has more knowledge of his likely use of health services and uses that superior knowledge against the insurer, it is called adverse selection.



with 57 percent (Medical Benefits, 2005). Because people value health insurance they are willing to take some of their compensation in the form of health benefits, trading wages for benefits.

Health insurance also tends to be less expensive when purchased through an employer. There are three reasons for this. The first has to do with insurance underwriting. Employed people tend to be healthier, on average, than those who are unemployed. Employment serves as a good signal of lower expected claims costs, and consequently an employer group can usually purchase coverage at a lower price than can an individual. The second reason has to do with the nature of the existing tax laws. Health insurance is not taxed as federal or state income, nor is it subject to Social Security and Medicare payroll taxes. Thus, if an employee were to value a dollar of health insurance as equivalent to a dollar of take-home pay, an employer need only spend a dollar on health insurance rather than a dollar plus tax on money compensation. Third, there are economies in the marketing and administration of employer group plans relative to individually purchased insurance.

This leads to a question of why some firms do not offer health insurance. There are two related reasons. First, not all firms face the same costs of offering health insurance. Firms with high turnover face higher administrative costs, for example. Smaller firms have higher administrative costs per worker. Further, as Chollet (1988) notes, small firms are particularly prone to adverse selection, including, on occasion, the employment of family members for the explicit purpose of insuring anticipated future medical expenses.

Second, not all employees value health insurance equally. There are several reasons for this. Some would rather spend their limited income on food and shelter rather than health insurance, even at the lower price available through an employer-sponsored group plan. Some employees are not particularly risk averse. Others have smaller probabilities of becoming ill. Some may view themselves as “invincible.” As we noted above, the probability of buying insurance declines with the probability of the occurrence of the bad event over a wide range of real world health events. If the use of health services is unlikely, they would prefer to be paid in money wages. Some are covered under their spouse’s or parents’ plans and would rather have the cash. Finally, some have income and assets that may be near the Medicaid eligibility threshold in their state. A generous Medicaid program would then be a substitute for private coverage. These people too would prefer money wages.

As Goldstein and Pauly (1976), Jensen (1986) and Monheit and Vistness (1999) show, this line of reasoning suggests that firms with high costs of providing health insurance will be less likely to do so and will tend to attract those people who value health insurance less intensely.

### **c. TAX ADVANTAGES**

Tax advantages have provided a significant incentive for employer provision of health insurance. In 1943 the Internal Revenue Service ruled that employer contributions to group health insurance were exempt from taxable income. In 1954 section 106 of the Internal Revenue Code extended this exemption to individual health insurance policies and section 3104 excluded all employer health insurance contribution from the wage base for determining Social Security taxes (Feldman 1987). This tax treatment can be viewed as a subsidy for the provision of health insurance (Feldstein and Allison 1974; Vogel 1980; Ginsburg 1981). Someone in the 27 percent federal income tax bracket, paying 5 percent state income tax and 7.65 percent in Social Security and Medicare taxes, would find that an extra dollar of employer-sponsored health insurance effectively cost them less than 61 cents. If the worker is in a higher tax bracket, the tax subsidy for employer-sponsored health insurance is even greater. Indeed, over the course of the 1970s and early ‘80s inflation gave people higher nominal income that was taxed at higher rates. This led to progressively larger tax subsidies for employer sponsored coverage (Morrisey 1983). The Joint Economic Committee of the Congress estimated that in 2002, the federal tax revenue forgone as a result of this tax subsidy equaled \$137 billion (Miller 2003).



The tax subsidy provides an incentive for broader and deeper coverage. In the simple insurance market discussed above, someone may not purchase dental coverage because the size of the loss was relatively low. The tax subsidy reduces the effective price, encouraging employees to press their employers to include dental coverage in the benefit package. Similarly, the tax subsidy encourages the coverage of events with low expected losses like well baby care.

Thus, the purchase of health insurance through the employer is a complex issue. It involves not only the premium charged, but also the tax rates of employees and the relative costs across firms.

The tax incentives also complicate the business decision to change the coverage of health benefit plans. Suppose for example, that a benefits manager discovers the cost saving implications of implementing greater cost sharing in the form of larger out-of-pocket payments for health services. The firm implements this in a new health insurance plan. As expected, claims costs decline. However, employees correctly view this change in benefits as a diminution of their compensation. To keep the best employees from leaving for other firms, the employer decides to raise wages. Indeed, if full coverage insurance caused employees to consume units of health care that were only of minimal extra value to them, the cost savings from reduced claims should be enough to make the employees whole and have something left to enhance firm profits. However, if an employee is in the 45 percent marginal tax bracket (27 percent federal plus 15 percent Social Security plus Medicare plus 3 percent state), to be as well off as before the health benefit change the firm must spend \$1.45. Thus, for a firm to seriously consider benefit changes, the changes have to generate enough savings to make the employees whole and pay for the taxes.

## d. CHOICE OF PLAN

Within the employer setting employees often have a variety of choices of health plan. Jensen (1986) argues that this arises from an attempt by firms to tailor health benefit packages to the different demands of their employees. Others have advocated multiple choice as a means of encouraging employees to choose less costly plans (Enthoven 1993). The issues are several.

As recently as 2002, 30 percent of establishments offered more than one health plan. Among establishments with 1,000 or more employees, 72 percent did so (MEPS 2002, Table 1.A.2d). Small firms, of course, were much less likely to do so. Nonetheless, in 2003 NFIB reports that 16 percent of small businesses with less than 250 employees offered more than one health plan (Morrisey 2003). The issues associated with multiple choice of health plans within a firm are also quite complex and it is not at all obvious that more choice will necessarily reduce the cost of either health insurance or employer labor costs. There are three fundamental issues: employee preferences, administrative costs and adverse selection. As is usually the case, tax laws complicate the story.

One would expect a profit maximizing employer to offer a choice of health plans if that choice somehow lowered his total labor costs. An easy example would be the case where one group of employees preferred a set of extensive benefits and the remainder preferred a smaller set with cost sharing features. One might sell group A its preferred benefit package at the price of lower wages and sell group B its preferred package for a smaller wage reduction. A simple administrative way to do this is adjust wages for everyone to reflect group B's benefits and then allow group A to buy the additional benefits with take home dollars.

Consider an alternative. The firm makes an equal contribution to each plan regardless of the differential benefits. Perhaps the payment level is the expected average health insurance expenditure for all employees and dependents. The problem then is one of adverse selection. Employees do not randomly choose a plan. Instead, they select the plan that has the benefits they are more likely to use. The higher use results in claims costs that are higher than previously. Indeed, in one of the first studies to examine adverse selection between alternative fee-for-service plans,



Ellis (1985) concluded that the high-option plan attracted enrollees who were as much as four times as expensive as those choosing the low option. Effects of this size can easily swamp the claims saving effects of price sensitivity in the use of health services. Cutler and Zeckhauser (2000) provide an annotated summary of a dozen studies that have followed Ellis; all find evidence of adverse selection into the high-option plans.

There is extensive literature on the extent of adverse selection between HMOs and traditional fee for service insurance coverage. Miller and Luft (1994), and Cutler and Zeckhauser (2000) provide excellent reviews. The existing empirical work generally concludes that much of the apparent cost savings in managed care plans is attributable to the attraction of low utilizers to HMOs rather than to anything an HMO does to reduce utilization. The Rand Health Insurance Experiment came to the opposite conclusion, at least for a single well-established, staff model HMO (Manning et al. 1987).

If the adverse selection effects are as large as some suggest, then large differences in premiums are needed just to correct for the differences in utilization. It is the case, however, that employees are quite sensitive to differences in the price of health insurance plans.



# CHAPTER V: EMPIRICAL STUDIES OF THE DEMAND FOR INSURANCE

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The empirical literature has attempted to address almost all of the issues raised by the theory of health insurance. However, the issues are diverse and the data have not always been well suited to the task. There has been no analog to the Rand Health Insurance Experiment to provide consistent, if not always ideal, answers. This chapter begins with a discussion of price sensitivity on the part of employees for health insurance plans offered by their employers and then reports on the effect of premiums on take-up decisions by employees offered coverage. It proceeds to broader issues of evidence on who pays for employer-sponsored coverage, the role of employers as agents for their employees, the effects of tax laws on the demand for coverage, the evidence on premium sensitivity by small employers, and finally the evidence on the individual or non-group market.

## a. PREMIUM SENSITIVITY AMONG EMPLOYEES

Most non-elderly people in the U.S. get their health insurance through their employers. Estimates from the 2004 Current Population Survey (CPS) indicate that over 116 million people aged 18 to 64 have employer-sponsored coverage, some 65 percent of the population (Fronstin 2004). Thus, it is reasonable to start by examining the price sensitivity of health insurance in the employer setting.

Surprisingly, there have been few studies that have attempted to estimate the demand for health insurance on the part of large firms. This stems in part from the fact that virtually all large employers offer coverage (Gabel et al. 2003) and the fact that since larger employers tend to self-insure their conventional and preferred provider options, the product being purchased is not insurance per se, but administrative services.

There have been several excellent studies that investigate the willingness of employees to switch health plans when out-of-pocket premiums change. Feldman and colleagues (1989) have provided the most technically sophisticated study of employee choice of health plans. This study also yielded some of the largest estimates of price sensitivity. Earlier studies of employee price responsiveness tend to be biased, leading to an understatement of the degree of price sensitivity. The problem is that even the best studies did not consider the options actually available to the employee/decision-maker.

Suppose a firm offered an HMO and a traditional plan. If the firm added another HMO option, it is likely that the new HMO is going to be a better substitute for the existing HMO than for the traditional plan. Thus, when one examines the effect of a premium change on the selection of an insurance plan by an employee, it is critical to know what options are actually available. Raising the premium on the HMO when there are no other HMO options will likely have only a small effect on HMO enrollment. Raising the price of one HMO when several are



available to the employee is likely to result in much larger shifts away from the now higher priced plan. Structuring a data set to examine the options that are truly available can be difficult. For an employee with a family, the individual coverage option may not be a good substitute for family coverage. However, if the spouse can get health insurance coverage through his/her place of work, then the choices facing this family may be much broader. The couple could choose two individual coverages, one (or two) family plans offered by one of the employers, or a single plan and a family plan. The availability of substitutes is the essence of price sensitivity. If an analysis fails to consider the relevant substitutes it will understate the extent of price responsiveness.

Feldman and company used 1984 data from 17 firms in Minneapolis and St. Paul and examined the plan choices made by 906 single employees who had no dependents and 2,146 single parent families and married employees whose spouses were not covered elsewhere. The analysis was limited to these two distinct groups of employees because each group was believed to face its own common set of plan options. The authors demonstrated statistically that the inclusion of other employees who had different insurance options led to bias, in this case to lower estimates of price sensitivity.

The researchers also argued that traditional and prepaid group practice plans differed along one fundamental dimension: the freedom to choose a provider. As a result they categorized independent practice association (IPA) type HMOs as freedom of choice plans along with more traditional fee-for-service type insurance plans. One of the strengths of the Feldman et al. study is that it tests this assumption. First, this characteristic of freedom of choice was widely marketed as an advantage of both IPAs and traditional plans. Second, when the standard HMO vs fee-for-service categorization was examined, it led to less reliable estimates.

The key result of this study was that employees were less likely to choose health plans with higher monthly out-of-pocket premiums. The size of the effects depended upon: (1) the initial enrollment share of the plan raising its price and, (2) the share this plan has of overall enrollment in similar plans i.e., HMO or free choice plans. Thus, a matrix of responses results depending upon the choices available to the employee.

Table V.1 presents the results of a \$5 dollar increase in out-of-pocket premium for single employees. In 2004 dollars, this would be the equivalent of a \$9 increase in the monthly premium. Suppose a restricted choice health plan, e.g., a group model HMO, enrolled 40 percent of the single employees in the firm. And suppose, further, that this HMO has 80 percent of the total HMO enrollment of single employees in this Minneapolis-St. Paul firm. Then the \$5 increase in out-of-pocket premium was estimated to result in a 45 percent reduction in the plan's enrollment share of single employees. This is substantial. The results for those employees with family coverage, but no other source of employer-sponsored coverage were similar.

As one moves down a column in Table V.1, "this HMO" is increasingly the dominant provider of managed care at this firm. When it's a small managed care player (at the top of a column), its price increase results in substantial loss of enrollment to other HMOs. When it is the dominant HMO (at the bottom of the column), it only loses enrollment to conventional plans. When one moves across a given row, the HMO has constant competition from other managed care plans, but declining competition from conventional type plans. As one moves across the row, the declines in enrollment share are smaller. Thus, the sole HMO enrolling all of the single employees faces no loss of enrollment share (lower right), but an HMO with a small enrollment share of single employees facing competition from other HMOs may lose all its enrollment (upper left).

In follow-up work Dowd and Feldman (1994/95) examined 1988-1993 data on five Minneapolis-St. Paul firms that offered two or more of seven different conventional and managed care plans. Rather than carefully worrying about the choice sets available to employees, they



**TABLE V.I**  
**PERCENT OF SINGLE COVERAGE PLAN ENROLLMENT LOST AS A RESULT OF A \$5 PER MONTH PREMIUM INCREASE**

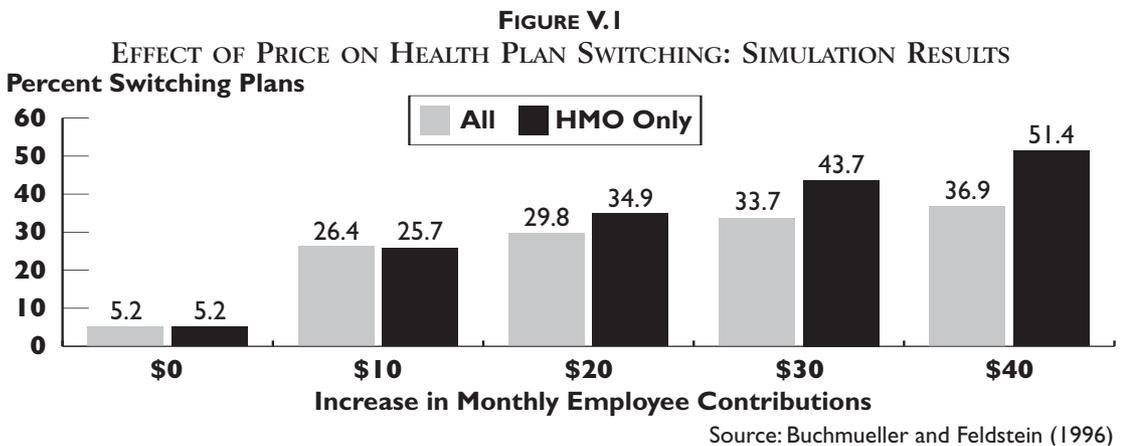
**This HMO's initial share of single coverage workers\***

This HMO's share of all HMO coverage	This HMO's initial share of single coverage workers*										
	10	20	30	40	50	60	70	80	90	100	
10	100										
20	100	100									
30	100	100	98								
40	96	90	88	84							
50	86	82	78	74	70						
60	79	73	68	64	60	56					
70	67	63	59	55	50	46	42				
80	57	53	49	45	40	36	32	28			
90	48	44	39	35	31	27	22	15	14		
100	38	34	30	25	21	17	13	8	4	0	

Source: Computed from Feldman et al. (1989)

simply estimated the enrollment share responses to changes in the relative employee premium contributions of the plans offered. Here a \$5 higher premium contribution (\$9 in 2004 dollars) was associated with a reduction in single coverage enrollment share of 11.2 percentage points. This translates into an elasticity of -7.9. Moreover, given the bias introduced by not accounting for coverage options available through a spouse or parent, this is an underestimate!

Buckmueller and Feldstein (1996) examined the effect on plan choice of using a level-dollar premium contribution plan. In 1994, the University of California system changed its health insurance program from one that set the University's contribution to the average of the four most popular plans to one pegged at the least costly plan. In the new program, if an employee wanted the least costly plan, she paid nothing out-of-pocket. However, if she wanted a more expensive plan, she had to pay an employee premium contribution equal to the entire difference in premiums between the chosen plan and the least costly plan. Buckmueller and Feldstein compared enrollment before and after the change. Their findings are summarized in Figure V.I. For no change in monthly premium, approximately 5 percent of faculty and staff changed plans. This was presumably due to dissatisfaction with the plan arising from issues other than price. However, over 26 percent of employees changed plans when faced with a \$10 increase in premiums and nearly 30 percent did so when out-of-pocket premiums increased by \$20. Typically those in HMO plans were more likely to change plans for the same premium increase.



The conclusion from these and other studies, is that employees are very willing to change health plans for a relatively small change in out-of-pocket premiums. This has several implications. First, it explains why health insurers have been so aggressive in negotiating prices with hospitals and physicians. If their competitors are able to get lower prices and translate them into lower premiums, there can be large swings in enrollment. Second, it says that employers can effectively use employee premium contributions to influence plan choice among employees. Finally, if businesses are effectively, agents for their employees, choosing plans that they value, the price sensitivity reflected among employees should be reflected in the price sensitivity of the businesses themselves.

It is worth pointing out that these and other studies of worker premium sensitivity have been unable to control for the composition of the provider networks offered by health plans. Presumably one of the reasons for the dramatic price responsiveness to such small increases in premium contributions has to do with the ability of many enrollees to change health plans but keep their same doctors and hospitals. If employees had to change providers, one would expect that the price responses would be considerably smaller. Indeed, one of the reasons that employees appear to be less price sensitive to conventional health plan premium increases is because they do not wish to change physicians.

## b. EMPLOYEE PREMIUM CONTRIBUTIONS AND TAKE-UP RATES

Over the late 1990s there has been an erosion in insurance coverage through an employer. However, as a number of commentators have observed, this erosion is not primarily the result of fewer firms offering coverage, or declines in eligibility for coverage. Instead, the decline results from employees, eligible for coverage, declining to accept the offer. See Cooper and Schone (1997), Thorpe and Florence (1999) and Fronstein (2001). Cutler (2002) reports that 61 percent of the decline in employer-sponsored coverage stems from declines in take-up rates between 1988 and 2001.

Chernew and his colleagues (1997) were among the first to examine the effects of premium contributions on take-up rates among employees. They examined data from nearly 2,000 small businesses in six cities collected in late 1992 and early 1993. They found that even large subsidies were insufficient to encourage total participation in health plans, even among those with no other source of employer-sponsored coverage. Subsidies as high as 75 percent were estimated to have increased participation only from 89.0 percent to 92.6 percent and implied a premium contribution elasticity of -0.07. This was much lower than earlier estimates that found premium responsiveness in the range of -0.30 to -0.65 (Marquis and Long 1995). Chernew et al. attribute the difference, among other things, to their focus on single employees with access to coverage through an employer and Marquis-Long's focus on low-income employees who, for the most part, did not have access to employer-sponsored coverage. Blumberg et al. (2001) found results similar to Chernew's using a nationally representative sample. The take-up elasticity estimate was -0.04.

Using 1999 employer health insurance data, Cutler (2002) sought to explain the drop in take-up rates over the 1990s. He examined establishment specific take-up rates as a function of the out-of-pocket premium for the least costly plan offered, as well as wage rates, total insurance premiums and controls for industry and region. He found a take-up elasticity of -0.09. For each 10 percent increase in employee premium contributions, the take-up rate declines by 0.9 percent. This estimate is consistent with both the Chernew et al. (1997) and Blumberg et al. (2001) estimates. However, even though this is a small price response, because premium contributions had increased so dramatically over the period, this effect was large enough to explain the entire decline in employer-sponsored coverage. That is, the small price responsiveness, together with large increase in out-of-pocket premiums, led to declines in take-up rates that were large enough to explain the entire drop in employer-sponsored coverage over the period.

Gruber and Washington (2004) also investigated the extent of price sensitivity among those offered employer coverage. They argued that the earlier work may have resulted in estimates of



price responsiveness that were biased. The direction of bias in the Chernew and Blumberg estimates depends upon whether employers provide low employee premium contributions because employees have preferences for insurance, or whether they provide low premium contributions to encourage employees with low preferences for insurance to take it nonetheless. Cutler's estimates may be biased because the size of the premium contribution is likely to depend upon the tax rate that employees have to pay.

Gruber and Washington investigated a natural experiment that appeared when the U.S. postal employees were allowed to pay the employee share of their health insurance premiums with pre-tax dollars after 1994. This change should be unrelated to worker preferences for insurance and to tax rates of employees. Using 1991 through 2002 data from the Postal Service and the Federal Employees Health Benefit Plan, they too find small take-up elasticities. In the family coverage regression they find a take-up elasticity of -0.022 and an overall take-up elasticity of -0.007. These estimates of price responsiveness are even smaller than those found by earlier authors.

## C. WHO PAYS FOR EMPLOYER-SPONSORED HEALTH INSURANCE?

As a matter of economic theory it is well established that employees pay for health insurance. The agreement is straightforward. Employees are essentially paid what they are worth to the firm. In the jargon of economics, they are paid the value of their marginal product. The compensation can take many forms: money wages, pensions, vacation time, an attractive working environment, and health insurance. If the labor market is in equilibrium, when health insurance is added to a compensation package, something else must be taken out. If something is not taken out, the firm is not maximizing profits because it could have hired equally talented employees by offering less overall compensation. As we noted in Chapter 4, employers will provide health insurance if their employees value the coverage and the employer can provide the coverage at a lower price than the employee can buy it himself. The empirical issue is whether employees actually pay for health insurance provided through their employer.

The answer to this question is mixed but increasingly the evidence supports the theory. Early studies and some recent ones have been unable to establish the wage-benefits tradeoff. Other studies find strong evidence that employees pay for health insurance. The key methodological issue in estimating compensating differentials is coming to grips with differences in employee skill levels. Employers search for employees who are smart, innovative, able to work with co-workers and to interact appropriately with customers, among a host of other factors. All of these skills contribute to the employee's productivity. All of these things are relevant to the researcher's effort to identify wage-benefit tradeoffs as well. Unfortunately, the only measures a researcher typically has available are the age, gender, and sometimes the years of schooling of an individual. If more productive employees are more likely to have both higher wages and health insurance, then an inability to control adequately for these unobserved productivity levels means that the coefficient on health insurance in a wage equation will be biased upwards.

Morrisey (1993) provides a review of the early literature on this topic. More recently Levy and Feldman (2001), Simon (2001) and Jensen-Morrisey (2001) have had only very modest success in finding wage adjustments. Levy-Feldman compared changes in wages among individuals who gained or lost health insurance over the early 1990s. They found no wage offset, perhaps because those changing jobs and, therefore, gaining or losing coverage were folks who were disproportionately mismatched in their former position. Simon used the same strategy to examine involuntary job changes but also found no wage offset. Jensen-Morrisey argued that wages and benefits were simultaneously determined. They were able to predict the presence of health insurance, pensions and vacations and used these predictions in a subsequent wage equation. They found a "high-side plausible" wage-health insurance tradeoff, but the results were sensitive to specification.



The strongest of the compensating differentials analysis is that of Gruber (1994). He examined the effects of state mandated maternity benefits in New York, New Jersey, and Illinois in the late 1970s prior to the federal 1979 Pregnancy Discrimination Act. He conducted a “differences-in-differences-in-differences” analysis. That is, Gruber compared wages of affected and unaffected groups, before and after the enactment of the law, in states that did and did not enact the mandate. Thus, the effects in principle should not be contaminated by secular trends in wages, by systematic differences across states, nor by conditions common to the affected group. He found that affected groups, married women aged 20 to 40, had net lower wages sufficiently large to pay for the cost of the maternity benefits. Unaffected groups, those over age 40 and single men, had wages that were unaffected by the law. This is striking evidence of compensating differentials.

Miller (2004) used Consumer Expenditure Survey data from the late 1980s to look at the effects on wages of those who added or lost health insurance. He found that men losing health insurance had wages that were 10 percent to 11 percent higher. Sheiner (1999) examined the wage profile of men across their working lives. She argued that the wage-age profile should be flatter in markets where health insurance was more expensive. If there is a compensating wage differential, then older men in high cost markets will face higher wage adjustments than will similarly aged men in less costly markets. With data from the 1989-1990 period, she found that men’s wages were \$113 lower per year of age in markets with higher insurance costs. Pauly and Herring (1999) used a similar technique to look at the wage profile by job tenure of those with and without health insurance. They too found evidence of lower wages in the presence of health insurance. Finally, Bhattacharya and Bundorf (2004) examined the incidence of health care costs of obesity. They found that obese employees with their own employer-sponsored health insurance pay for their higher expected medical expenditures in the form of lower money wages. The results are not found for those with coverage through alternative employer coverage nor for other types of non-health benefits. Thus, there is increasingly strong evidence of compensating wage differentials. Indeed, Guber (2000) in his major review of the literature concluded that there was strong evidence for full, or nearly full shifting of health insurance costs to wages.

A recent study by Goldman and colleagues (2003) provides unique insight into the sorts of tradeoffs workers are willing to make. They considered the wages and benefits provided in a single, large unnamed firm. This firm provided employees with wages and “benefits credits” that they could spend on health insurance, pensions, vacation days, etc. Employees could trade wages for additional benefits credits and vice versa. Health insurance premiums on all plans increased each year. When all health insurance premiums increased, the study found that employees switched to relatively less expensive health plans, took fewer other benefits, and reduced their take-home pay. The study found that a 10 percent increase in health insurance premiums led to increased insurance expenditures of only 5.2 percent because many employees shifted to relatively cheaper health plans offered by the employer. The bulk of these higher expenditures (71 percent) were paid for with lower take-home pay; the remaining 29 percent by giving up some other benefits. Thus, if insurance premiums increased, on average, by \$200, the typical employee spent \$104 more on coverage and paid for this by reducing take-home pay by \$74 and giving up \$30 in other benefits. If employers act as agents for their employees, one would expect them to make similar wage and benefit adjustments to accommodate higher cost health insurance.

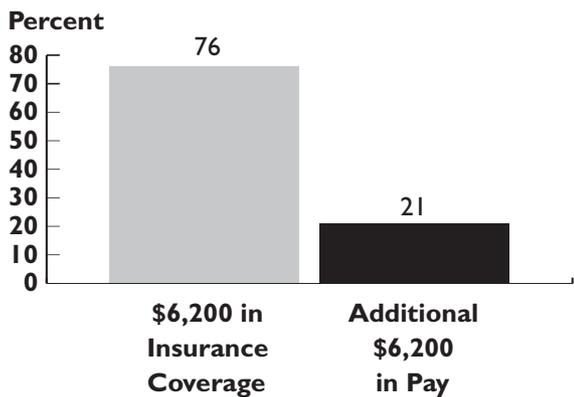
#### **d. EMPLOYERS AS AGENTS FOR THEIR EMPLOYEES**

If employees effectively purchase their health insurance through their employers, how good a job do employers do as agents for their employees? There is remarkably little direct evidence on this question. The Commonwealth Fund (Duchon et al. 2001) Health Insurance Survey reported that 74 percent of employees with employer-sponsored coverage thought that employers did a “good job” in selecting quality health plans. Thirteen (13) percent thought they did a poor job. A recent survey by the Employee Benefits Research Institute (EBRI 2004) reported



that in 2004, 56 percent of employees were satisfied with the wage-benefits composition provided by their employer. Twenty-seven (27) percent would prefer more health insurance and lower wages while 11 percent wanted more wages and less health insurance. Somewhat inconsistently, the EBRI survey also found that over three-fourths of full- or part-time workers would prefer to have the employer-sponsored health insurance rather than the average health insurance expenditure as additional pay (EBRI 2004). See Figure V.2.

**FIGURE V.2**  
**PREFERENCES FOR WAGES OR HEALTH INSURANCE**



*“Employers who provide health benefits now pay an average of \$6,200 per employee each year for that coverage, which is not counted as taxable income to employees. Would you rather have?”*

Source: EBRI Health Confidence Survey (2004)

The NFIB Research Foundation (2003) found that small employers certainly perceive themselves as providing the mix of compensation desired by their employees. When asked “If you wanted to give your employees the equivalent of an additional \$1.00 per hour, [how] would you be most likely to give it to them?” over 73 percent responded that they would give the raise as wages or salary. Paid time off and health insurance benefits were very distant second and third responses. When asked “If your employees were to get the equivalent of an additional \$1.00 per hour, how do you think they [would] want the increase?” over 82 percent responded that their employees would want the increase as wages or salary.

Moran and colleagues (2001) tried to determine the extent to which employer health insurance plans reflected the diversity of preferences of their employees. They examined data from 22,000 firms in 10 states using a 1993-94 Robert Wood Johnson Foundation survey and linked the number of health plans and types of health plans offered to measures of the heterogeneity of the firm’s workforce. They found that in a medium-sized firm, a two standard deviation increase in the gender heterogeneity increased the probability of offering multiple plans by 7.3 percent and the probability of offering multiple plan types by 4.4 percent. A similar change in age heterogeneity resulted in 8.6 percent and 12.0 percent increases in the probabilities of offering multiple plans and plan types, respectively. These results suggest that firms respond to employee preferences, but the effect sizes are quite small and were swamped by firm and establishment-size effects.

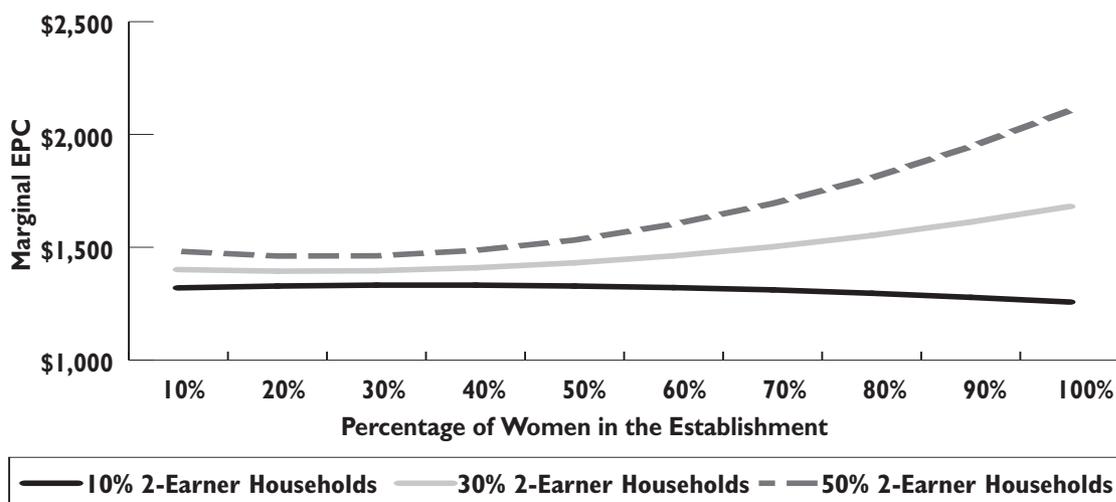
Rather than accommodating employee preferences with respect to health insurance, Dranove, Spiers and Baker (2000) argue that employers have provided incentives for spouses to obtain health insurance coverage through their own workplaces rather than through family coverage. Using 1993-94 Robert Wood Johnson Foundation Employer Health Insurance Survey data, they found that firms with more female employees and with more part-time workers had higher employee premium contributions.

Vistnes, Morrisey and Jensen (2005), however, argue that such actions by employers may not reflect efforts to drive people away for family health insurance coverage. It is equally likely that employers are responding to preferences of employees in two-earner households who have a wider range of insurance options. A household with two people working, for example, may



prefer family coverage through one employer and no coverage through the other. Alternatively, they may prefer two single coverage policies, or some other arrangement. Vistnes and her colleagues used 1997 through 2001 Medical Care Expenditure Survey data from the employer list file to examine the effects of employee heterogeneity within a firm and the presence of two-earner households within an employers labor market. They estimated the “marginal employee premium contribution” (marginal EPC) for family coverage as a function of employee, establishment and market characteristics. The marginal EPC is the out-of-pocket premium for family coverage over and above that for single coverage. The results for the proportion of women in the establishment are summarized in Figure V.3. The marginal EPC does increase rapidly as the proportion of women in an establishment increases, but only in markets with a higher than average proportion of two-earner households (50 percent). In contrast, the marginal EPC declines with the share of women employees in markets with less than the average proportion of two-earner households (10 percent). The middle line in the figure traces the rise in premiums for firms in markets with the average (30 percent) proportion of households with two-earner households. Whether these findings reflect employers acting as agents for their two-earner household employees or employers seeking to cast off insurance coverage for employed spouses must await a test able to separate the two hypotheses. It is clear, however, that employers are sensitive to the insurance choices that modern households have available.

**FIGURE V.3**  
**PREDICTED ANNUAL MARGINAL EPC BY PERCENTAGE OF**  
**WOMEN IN THE ESTABLISHMENT FOR SELECTED PERCENTAGES**  
**OF TWO-EARNER HOUSEHOLDS IN THE MARKET**



Source: Vistnes, Morrisey, and Jensen (2005)

## e. TAXES AND HEALTH INSURANCE

There have been a number of efforts to examine the effects of tax rates on the provision of employer-sponsored health insurance. Because employer-sponsored health insurance is not treated as taxable income, differences or changes in federal and state income tax rates can serve as a source of price variation that would allow researchers to directly examine the impact of tax policy, but also allow them to estimate the price responsiveness of employer-sponsored coverage.

The data and methodological challenges in this approach are not trivial. Ideally, one would like information on family income from all sources and the federal and state income taxes as well as Social Security and Medicare payroll taxes that are relevant to them. In addition, one needs some information on the nature of the health insurance coverage these families have or have access to.

Early work found large estimates of tax-price responsiveness. Long and Scott (1982) found that a 10 percent increase in the marginal tax rate resulted in a 2.2 percent increase in the proportion of total compensation received as non-wage benefits; the proportion of compensation received as health insurance was estimated to increase by 4.1 percent. This study analyzed annual national data 1947 through 1979 and treated the family's tax rate as independent of employment or coverage decisions. The model, however, is likely to be mis-specified because it does not adequately control for other time varying factors. Sloan and Adamache (1986) found a 10 percent tax increase to be associated with a 6 percent increase in the proportion of compensation paid in life and health insurance. Like Long and Scott they computed a marginal tax rate from family income; this approach introduces potential causality problems in as much as family tax rates depend upon health insurance decisions.

Other studies have relied on differences in state income tax rates to motivate health insurance coverage decisions. Royalty (2000) is the most recent example. She used 1988 through 1993 Current Population Survey (CPS) data on family income and employer-sponsored health insurance coverage to examine the effects of differences in state income tax rates for median income households. She found that a 1.0 percentage point increase in tax rates increased the probability of having employer coverage by 0.8 to 1.0 percentage points. This implies a net tax price elasticity of -0.57 for a person with a marginal tax rate of approximately 48 percent. This is on the lower end of the range of earlier studies using this approach. Gruber and Lettau (2004) criticize this approach, arguing that those states with the highest tax rates may also be the states in which residents have a substantial taste for insurance.

The strongest study of tax price responsiveness to date is that of Gruber and Lettau (2004). They use 1983 through 1995 data from the Employment Cost Index to get detailed information on wages and the value of non-wage forms of compensation on nearly 204,000 jobs from over 48,600 firms. CPS data by industry, occupation, wage and state are used to impute average demographic characteristics and other income sources to the job. Based on these characteristics, tax rates are computed for married and single, itemizers and non-itemizers in the relevant state of employment using the NBER's tax simulation model. In essence, the study team imputes likely marginal tax rates (inclusive of federal and state income taxes and Social Security and Medicare payroll taxes) to each job. They then compute the tax-price of employer-sponsored coverage. The tax-price is essentially 1 minus the relevant marginal tax rate. As one's marginal tax rate increases, the tax-price of employer-sponsored health insurance declines.

Gruber and Lettau found an insurance offer elasticity of -0.25. A 10 percent increase in the tax-price is associated with a 2.5 percent reduction in the probability of having insurance through an employer. In addition, the generosity of coverage is more responsive to tax-prices than is the overall coverage decision. A 10 percent increase in the tax-price was associated with a 7.1 percent reduction in spending on health insurance. These estimates are in the mid-range of the coverage elasticity estimates and on the high end of the expenditure estimates. Elasticity estimates for small firms, those with less than 100 employees, indicated that they were roughly twice as price sensitive as the average firm. Offer and expenditure price elasticities were -0.54 and -1.34, respectively for the small firms.

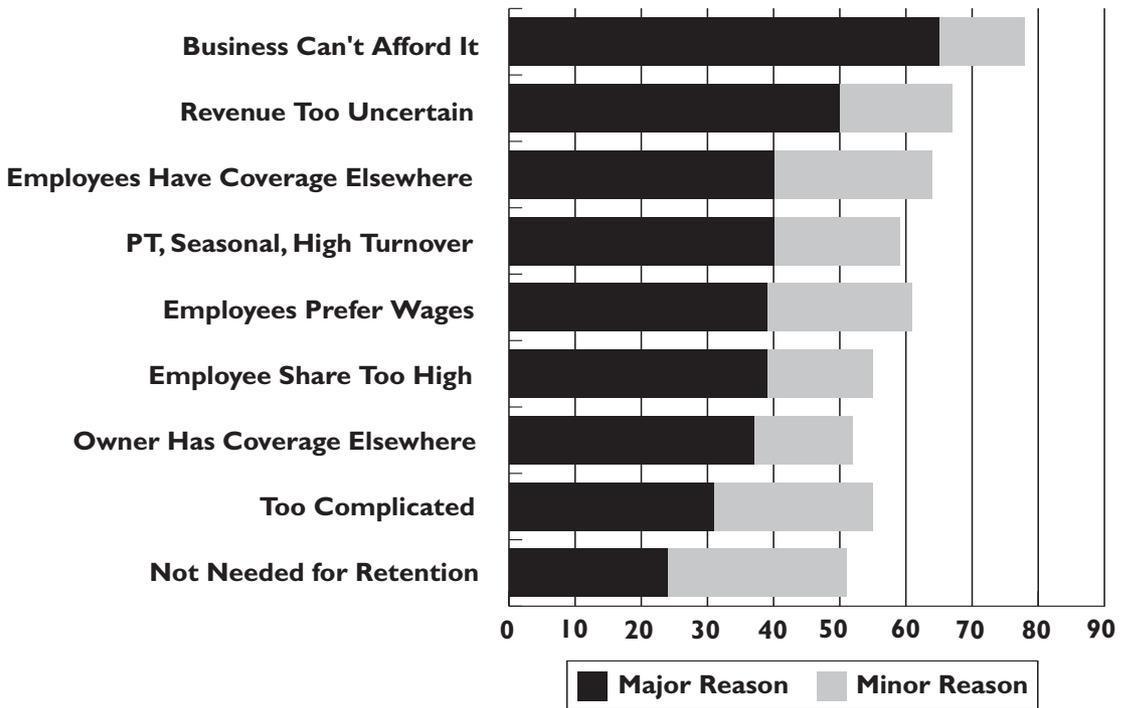
## f. PRICE SENSITIVITY AND SMALL EMPLOYERS

The provision of health insurance by small employers attracts particular attention because small employers have been the least likely to provide coverage to their employees. The NFIB National Small Business Poll reported in 2003 that 48 percent of small businesses provided health insurance. However, coverage varies widely based on firm size. Only 41 percent of businesses with less than 20 employees offered health insurance, while 78 percent of those with 20 or more employees did so (Morrisey 2003). As Figure V.4 shows, the principal reason given for not offering coverage is its cost. There have been a handful of efforts to estimate the price sensitivity of



small business for health insurance coverage. There have been even more policy efforts to try to influence the coverage decisions in the small group market with an eye to expanding coverage.

**FIGURE V.4**  
**REASONS WHY SMALL EMPLOYERS DON'T OFFER HEALTH INSURANCE**



NFIB National Small Business Poll (Morrisey 2003)

Feldman et al. (1997) were among the first to rigorously investigate the extent of price sensitivity among small employers. They used a survey of 2,000 Minnesota firms to examine the effects of premiums, worker characteristics, and competitor actions on the decision to offer coverage in 1993. The principal difficulty in this sort of direct analysis is determining the relevant insurance premium for those firms that did not offer coverage. Feldman and colleagues used characteristics of firms with coverage to predict premiums charged and they used these predicted values in their analysis of offer decisions. They found that a 1 percent increase in single coverage premiums was associated with a 3.9 percent decrease in the probability of offering coverage. A 1 percent higher family premium was estimated to reduce the probability of offering family coverage by 5.8 percent. Other studies have used less sophisticated techniques to arrive at premiums for the firms that did not offer coverage. Leibowitz and Chernew (1992), Jensen and Gabel (1992), and Marquis and Long (2001) used list prices from insurers, state average premiums, and quotes from recent shoppers. The range of premium elasticities, however, was very broad, from -0.1 to -2.5.

Hadley and Reschovsky (2002) used a nationally representative Robert Wood Johnson Foundation survey of over 11,000 small firms with less than 100 employees conducted in 1997. They essentially follow the Feldman et al. approach but were more careful in worrying about selection of firms offering coverage. Overall, they found a much smaller small-firm premium elasticity, -0.54. That is, a 10 percent increase in premiums was associated with a 5.4 percent reduction in the probability that a small firm offered health insurance. A particular strength of their study was the derivations of estimates of price sensitivity across firm sizes and levels of employee income. As might be expected, the smallest of small firms, those with less than 10 employees, were the most price sensitive (elasticity of -0.63); a 10 percent increase in premiums reduced the probability that they offered insurance by 6.3 percent. In contrast, those with



50 to 99 employees, had an elasticity of only -0.03. Firms with a preponderance of low-wage earners were the most sensitive to premiums. If more than 75 percent of the employees earned \$7 per hour or less, the premium elasticity of insurance offer was -1.18. Firms that had higher proportions of more highly paid employees had less price sensitivity.

Gruber and Lettau (2004) also provided detailed analysis of small employers, but over the 1983-1995 period. They, too, found that small employers, those with less than 100 employees, were more price sensitive than employers overall. The offer elasticity in their study was -0.54 (compared to -0.25 for all firms). They also found that small firms' expenditures on health insurance are more price sensitive with an expenditure elasticity estimate of -1.34 compared to -0.45 for large firms.

State legislators have been active in trying to reform the small-group market with an eye to making insurance more affordable for smaller firms. These efforts have been unsuccessful in large part because the reforms do not make health insurance more affordable for many small businesses.

Some states have enacted reforms limiting medical underwriting or enacting provisions dealing with pre-existing conditions or waiting periods (Jensen and Morrissey 1999). These provisions are a two-edged sword. Medical underwriting, for example, seeks to set higher premiums for firms with higher expected claims experience and lower premiums for those with lower expected claims. If medical underwriting is prohibited, those firms with reasonably healthy workers will find they face higher premiums since they are now pooled with higher cost groups. On the other hand, firms with less healthy employees will face lower premiums. The premium sensitivity estimates just reported suggest that firms with healthy employees will disproportionately drop coverage and those with disproportionately unhealthy employees will buy coverage. The result will be churning with respect to which firms offer coverage and the net effect on coverage will depend upon which effect dominates. A similar analysis can be presented for limitations on waiting periods and pre-existing conditions.

As a consequence, it is perhaps not surprising that the empirical literature on state small group reform efforts have been virtually unanimous in finding no effects on the proportion of small firms offering coverage. In early work Jensen and Morrissey (1999) found that underwriting provisions, premium regulation, and exemption from state insurance mandates had no effect on the likelihood that a firm offered coverage. Long and Marquis (2001/2002) examined a "second generation" of reforms focusing on guaranteed issue and medical underwriting. They, too, found no effect of the laws. The effects of "bare bones" laws that excluded small firms from state mandates is perhaps surprising. One explanation offered is that employees don't want limited benefit packages; a second is that the bare-bones legislation has sometimes done more than just eliminate state mandated benefits, it has also specified very undesirable benefit packages with limited days of hospitalization, for example.

Finally, it is worth noting that one important reason that small firms do not offer coverage is that their employees do not value the coverage. Monheit and Vistnes (1999) examine this issue. The basic logic goes as follows: firms have different costs of providing health insurance and, in general, it is believed that small firms have insurance costs per employee that are larger than bigger firms. Then, if these costs are passed on to employees, the compensating wage differential will have to be larger in small firms than in larger ones. Look at it from the employee perspective. Not all of them value health insurance. Some have coverage through a spouse or a parent. Some have access to Medicare or VA coverage. Some simply do not want to spend anything on insurance that they do not think they will need. For any of these reasons, such employees will prefer higher money wages to lower wages and health insurance. Thus, in functioning labor markets, those employees who do not value insurance coverage will be disproportionately drawn to firms that do not offer coverage—and firms that find health insurance more costly will be less likely to offer it. The upshot is that firms that do not offer coverage will disproportionately end up employing people who do not value coverage.



Monheit and Vistnes (1999) examine this scenario using the 1987 National Medical Expenditure Survey. The survey had information on employer insurance offerings and a series of questions on employee views about whether they needed health insurance, whether health insurance was worth the cost, and whether they thought they were more likely to take risks than were others. Monheit and Vistnes concluded, “Our results for single workers are consistent with this sorting behavior and suggest that preferences may be as important as worker characteristics in explaining the health insurance status of uninsured workers with weak preferences” (p. 783). Thus, if employees don’t value coverage, they will have low price sensitivity and won’t buy coverage. This is consistent with the small take-up elasticities reviewed earlier.

## g. THE INDIVIDUAL INSURANCE MARKET

There have been remarkably few studies of the price sensitivity in the non-group insurance market. The best of these studies is recent work by Marquis et al. (2004) who used 1996-2001 data from the CPS, the Survey of Income and Program Participation (SIPP), and the National Health Interview Survey (NHIS) to estimate price responsiveness among California families who did not have group or public sector coverage. One of the major difficulties in estimating non-group coverage decisions is obtaining the relevant insurance premium. Marquis and her colleagues addressed this by constructing a premium that would likely be paid by a standardized population based upon the actual premiums and coverage offered by the three largest individual insurers in the state. (They provided coverage to approximately 80 percent of the individually insured market.) These premiums were then assigned to individuals based upon age, year, and county of residence. Two approaches were considered. First, the premiums could be assigned based upon a random plan (weighted by market share) available to the candidate individual. Second, one could assign the least costly plan. The authors report that these options made little difference to the results, but they report the least costly plan estimates.

Marquis and colleagues found that, overall, a 10 percent increase in the tax-adjusted price of individual coverage (since some individuals are self-employed), reduced the probability of having individual coverage by 2.0 percent to 4.4 percent. The range of results arises because of the different data sets used. Younger people and the self-employed tended to be more price sensitive, while those with higher incomes were somewhat less price sensitive across age and employment settings. Those under age 35, self-employed and with a family income below 200 percent of poverty were the most price sensitive with elasticity estimates of -0.7 to -1.2. Those over age 35, not self-employed and with family incomes over 400 percent of poverty were least responsive to price. Their elasticity estimates ranged from -0.03 to -0.07.

These results are generally consistent with the few other studies that used national data. Marquis and Long (1995) found estimates for working families without group coverage in the -0.30 to -0.55 range. Herring and Pauly (2001) report elasticities of -0.3 to -0.4. In contrast, however, Gruber and Poterba (1994) looked only at self-employed families and found much larger price responsiveness, in the -0.5 to -1.0 range overall, and -1.8 for individuals. This study had the advantage of looking at a natural experiment, the 1986 Tax Reform Act, which changed marginal tax rates. It’s findings are not inconsistent with the self-employed estimates in the Marquis et al. study.

## h. SUMMARY

The picture of price responsiveness is not as clear for health insurance as it is for health services. There has not been a single unifying study that addressed the key issues in a systematic and consistent fashion. Nonetheless, there have been a rather large number of carefully conducted studies that have taken advantage of existing data. Further, the sophistication of the methods used has improved dramatically in just the last few years. I draw eight conclusions from this literature.

First, there is considerable price sensitivity on the part of insured employees. They will switch plans for relatively small changes in the out-of-pocket premiums. In the best study to



date, Feldman et al. (1989) found that in a firm in which HMOs enrolled 50 percent of the single employees, an HMO with 30 percent of this pie would lose 78 percent of its share of these employees if it raised the out-of-pocket premium by \$5 (\$9 in 2004 dollars). Findings of this sort are corroborated by other work by Dowd and Feldman (1994/95), Buckmueller and Feldstein (1996) as well as earlier work.

Second, while the size employee premium contributions play a large role in the choice of health plan, the price responsiveness of employees for any health plan is relatively low. That is, changes in the out-of-pocket premium have only a small impact on the decision to take-up insurance offered by an employer. The take-up elasticity estimates across studies are pretty consistent and range from -0.01 to -0.09. These suggest that small changes in out-of-pocket premiums have little impact on coverage. However, these small elasticities, when coupled with the large increases in out-of-pocket premiums that have been observed over the 1990s, are able to explain all of the drop in employer-sponsored coverage.

Third, as a matter of economic theory it is virtually a given that employees pay for health insurance in the form of lower wages or reductions in other forms of compensation. The empirical evidence for this proposition has historically been very weak. However, work by Gruber (1994), Miller (2004), Shiener (1999) and Bhattacharya and Bundorf (2004) have gone a long way to establish that employees, indeed, do pay for their health insurance.

Fourth, if employees pay for their health insurance, their employers in some sense serve as their agents. The evidence on how well they play this role is weak. There are relatively soft studies that report that employees, for the most part, are satisfied with the choices their employers have made for them. More rigorous studies by Dranove et al. (2000) and Vistnes et al. (2005) establish, at least, that employers pay attention to the broader insurance choices that employees have available to them. More work in this area is clearly in order.

Fifth, tax policy affects the provision of employer-sponsored health insurance. This relationship was shown empirically with work in the mid-1980s. More recent efforts have made great strides in putting together data sets that better reflect the relevant marginal tax rates and the nature of coverage. In the best of this work, Gruber and Lettau (2004) have shown an offer elasticity of -0.25 and an insurance expenditure elasticity of -0.71. That is, when the “tax-price” of insurance increases by 10 percent, we should expect a 2.5 percent reduction in the probability that a firm will offer coverage and a 7 percent reduction in insurance spending by employers on behalf of their employees. A “tax-price” is simply 1 minus the relevant marginal tax rate. A higher tax-price means that tax rates have fallen. The next wave of tax-related studies needs to focus on the effects of flexible spending and health savings accounts. These tax programs have the effect of sheltering employee premium contributions from taxes. Among other things, they lower the real cost of employee premium contributions and they allow for more transparency in demonstrating that it is employees who pay for employer-sponsored insurance coverage.

Sixth, small firms appear to have modest price sensitivity for health insurance. The growing number of estimates put the offer elasticity in the range of -0.54 to -0.63. The smallest of the small firms are more price sensitive than are those with 25 or more employees. While this degree of price sensitivity is much greater than that of large firms, it nonetheless, does not suggest that modest incentives to offer coverage will have large impacts. One of the reasons for this is that smaller firms have a comparative advantage in offering wages rather than insurance as compensation. Insurance tends to be relatively more expensive for smaller firms. As a consequence, small businesses will tend to attract people who disproportionately do not highly value health insurance (Monheit and Vistnes 1999). In short, one of the reasons small employers do not offer coverage, is that their employees do not value it.

Seventh, there have been a number of efforts to “reform” the small group insurance market. If the goal of these efforts were to expand the number of employees who have coverage



through a small employer, then these reforms have failed (Jensen and Morrisey, 1999) and Long and Marquis (2001/02). I suspect they have failed because the legislation does not appreciate that small firms are different, one from another. A reform that lowers the premiums for relatively unhealthy groups has the effect of also raising premiums for healthy groups. The net effect appears to have been little to no impact on coverage.

Finally, there is beginning to be some research examining the price sensitivity of people in the non-group or individual insurance market. The results suggest that the overall elasticity for these folks is in the range of -0.2 to -0.4. Younger self-employed people with incomes within 200 percent of the poverty line were the most price sensitive while older employed people with higher incomes were less responsive to prices. Given the attention that the individual market is likely to get from those interested in tax credits and those interested in minimizing the role of employers in health insurance decisions, much more work is needed in this area.



# CHAPTER VI: ENHANCING PRICE RESPONSIVENESS

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From the foregoing chapters it is clear that there is a fair degree of price responsiveness in the demand for health services. There is considerable price sensitivity among employees in the choice of health insurance plans, but substantially less for insurance overall. This chapter discusses mechanisms that could be used to enhance price competition in the health services and health insurance markets.

At its most abstract level, three things can be done to make people more price sensitive.

- One can raise the price that people have to pay for a product. At a higher price, we have the incentive to more carefully consider whether a good or service is worth the resources it takes to get it. The higher price also gives us greater potential gains from searching to find substitutes for the product.
- One can encourage the provision of information concerning the product. With better information, people can more easily see the similarities and differences between products. In this way we can judge the relative value of products and providers and can better act on price information.
- One can reduce the transactions costs associated with searching for and buying the product. This involves the elimination of barriers to exchange. Price sensitivity is enhanced if laws restricting price competition are eliminated, if new entrants are allowed to provide services, and if buyers are allowed to purchase only those products which they find worth the price.

In health care there are a number of opportunities to enhance price sensitivity. The biggest potential lies in raising the out-of-pocket prices that we face for health services and, particularly, for health insurance.

This is not a call for higher medical care prices! Rather, it is a recognition that we buy medical services in a world in which insurance artificially lowers the price of medical services. This encourages us to buy more medical services. Tax laws artificially lower the price of health insurance, encouraging us to buy more. Efforts to break this link will result in higher out-of-pocket payments somewhere along the line. However, this will result in lower utilization of medical services and fewer medical care expenditures.

The following sections first discuss mechanisms in the health services sector which would enhance price sensitivity. The focus will be on the use of higher deductibles and copays as a means of raising out-of-pocket prices. This also implies the provision of better information on effective services and treatments and on the quality of providers. Consumer directed health plans fit in this effort, but they need not be the only approach. Other efforts such as utilization management, for the most part, have been unsuccessful; we can stop using many of them and lower costs a bit. Selective contracting is the key to managed care. It was extraordinarily successful in using competition effectively and obtaining lower prices. It can do so again.

Second, there are a number of government actions that have not proven to be successful in controlling costs and often get in the way of effective price competition. These should be eliminated. The list includes certificate of need, any willing provider laws, mandated benefits, and



efforts at small group reform. However, there are other actions that government needs to continue and expand. There needs to be continued vigilance in enforcing the antitrust laws as they apply to health care markets. There need to be expanded efforts to measure quality and to assure that information on quality and price are available to consumers.

Finally, there should be fundamental changes in the tax treatment of employer-sponsored health insurance. Ideally this would involve inclusion of employer-sponsored health insurance in the taxable income base together with a lowering of the marginal tax rates, leaving tax receipts unchanged. Short of this, we should replace the current exclusion of employer-sponsored health insurance from taxes with a refundable tax credit.

## a. PRICE SENSITIVITY IN THE PURCHASE OF HEALTH SERVICES

### 1. ENCOURAGE THE USE OF LARGER COPAYS AND DEDUCTIBLES

The evidence for the RAND Health Insurance Experiment and the subsequent research on the price sensitivity of health care services makes it clear that copayments and deductibles are very effective at reducing the use of ambulatory services: physician, dentist, and mental health visits, and prescription drugs. They are less effective in reducing inpatient use. Thus, health insurance plans of all sorts should employ higher copays and substantial deductibles as a means of controlling ambulatory service use. Higher out-of-pocket payments give each of us an incentive to consider whether a particular service is worth the cost. When a pediatrician's office visit only costs a \$15 copay, we will use such visits as long as our family gets \$15 of benefit—even if the full cost of the visit is \$60. By raising copays to \$30 or \$45 we will only use those visits if we think the benefits are at least equal to the copay. Deductibles can play an even stronger role. With a \$1,000 deductible, many of us will not expect to have spending of that level, so we will view the price of the pediatrician's visit at the full \$60 and use fewer visits.

Health plans appreciate the effects of copays and deductibles. It was not that long ago that HMOs advertised the fact that there was no out-of-pocket payment associated with the use of their ambulatory services. Those days are now long gone. Ten dollar, \$20 and \$30 copays are common in managed care organizations precisely because they reduce the use of the less valuable ambulatory services.

Plans with higher copays and deductibles have lower premiums. If one is willing to pay something approaching the full cost of care for these types of expenditures, one is not burdened with the additional use of ambulatory services by others in the health plan. One can easily see this by going to one of many Web sites that offer health insurance, such as [ehealthinsurance.com](http://ehealthinsurance.com). Follow the links and see how the premiums fall with a willingness to accept higher deductibles and copays. Similar comparisons are available to employers all the time. By accepting higher deductibles and copays in exchange for lower health insurance premiums, consumers are trading away higher insurance premiums over which they have no control, for higher copays and deductibles that they control by their decisions to use services.

The current interest in “consumer directed health plans” takes advantage of the learning on the effectiveness of deductibles and paying greater out-of-pocket prices for health services. Such plans have a high deductible, often \$1,000 or \$2,000. After satisfying the deductible one has a relatively standard traditional or managed care insurance plan. This high-deductible plan is linked with a “Health Savings Account” that provides a tax-sheltered account from which to pay for the out-of-pocket expenses. The real strength of these plans is that they do give the consumer the incentive to decide whether a particular service is worth a price that is somewhat closer to its actual market price. As such consumers will use less care. They also have an incentive to search for lower priced providers who may offer better value.



The weaknesses of these plans are two-fold. First, there is little rigorous evidence that consumers will be able to obtain lower prices for health services by more aggressively shopping. They may, but the key question is whether they can get lower prices than could have been obtained by managed care plans through selective contracting (see below). Second, the tax sheltered spending plan diminishes the incentives to use less care and to search because of the tax treatment. Someone with a combined federal and state income tax rate of 25 percent finds that every dollar of health care spending from the health spending account actually only costs 75 cents. Social Security and Medicare payroll taxes only reduce the net out-of-pocket price further.

## 2. ESCHEW UTILIZATION MANAGEMENT, AT LEAST FOR AMBULATORY SERVICES

A second approach to dealing with the use of health services is to use some form of utilization management. Like the rationale for prices, the agreement for utilization management is that some services are not worth their full price. A price approach requires consumers to choose whether their use is worth their out-of-pocket cost. Utilization management substitutes professional judgment of the likely value of the services. Insurers have used a variety of techniques over the years: pre-admission certification and concurrent review of hospital admissions and lengths of stay, second surgical opinions, case management, and primary care gatekeepers who must provide approval for visits to specialists. The most recent effort at utilization management is disease management.

The rigorous empirical evidence on utilization management (UM) suggests that much of it is ineffective. Wickizer et al. (1989), Wheeler and Wickizer (1990), and Scheffler et al. (1991) all suggest that a combination of pre-admission certification and concurrent review reduced hospital days. However, the first two studies were limited to a single UM firm and the Scheffler study focused on Blue Cross - Blue Shield. All suffered from potentially serious selection bias and all are over 15 years old. More recently Lessler and Wickizer (2000) found that the utilization reductions from UM stem from the role of concurrent review in limiting the length of hospital stays. There is little other rigorous research demonstrating the effectiveness of other forms of UM in the inpatient setting.

Kapur et al. (2003) found that the vast majority of denials of care in their study of managed care were for the use of uncovered services and the use of providers not covered by the plan. Denial because of “unnecessary services” occurred in approximately 30 percent of the denials, typically for emergency care, ancillary health services, and minor surgery. One might argue that 70 percent of the denials studied reflect traditional adjudication of claims, not utilization management. Ferris et al. (2001) reported on the effects of the Harvard Vanguard decision to end its 25-year practice of requiring a primary care physician to provide a referral before a specialist could be seen. They found literally no difference in the use rate of specialists before and after the elimination of gatekeeping. This lack of effectiveness of gatekeeping is mirrored in Kralewski and colleagues’ (2000) work examining physician groups.

Thus, the evidence suggests that UM may be an effective alternative to out-of-pocket pricing for inpatient services but not for ambulatory care. This is useful, first, because it suggests that substantial resources can be saved by scraping these efforts on the ambulatory care side and relying on out-of-pocket pricing. Moreover, it suggests that one of the key elements of the managed care backlash can be overcome and managed care can again be the engine of cost containment that it was in the mid 1990s. The success of managed care is not managing care per se but selectively contracting.

## 3. RETURN TO SELECTIVE CONTRACTING

HMOs and PPOs choose to enter into contracts with some providers but not others. This decision is based upon many factors: the services, amenities and quality of the provider and also on



the price that can be agreed upon. There is evidence that consumers are willing to accept such tradeoffs. The Robert Wood Johnson Foundation Community Tracking Survey indicated that 59 percent of respondents were willing to trade a broad choice of providers for lower health care costs, compared to 55 percent in 2001. The increases were most pronounced among higher income groups (Tu 2005). The evidence out of California in the 1980s clearly suggests that managed care firms used market economics to obtain lower prices. In the best of the studies the subject PPO got lower prices from hospitals when: there were more hospitals in the market area; there was more idle capacity in the market; the PPO had a larger share of the hospital's book of business; and the hospital had only a small share of the PPO's book of business (Melnick et al. 1992). This evidence that selective contracting led to lower prices is borne out by a number of subsequent studies. See Morrisey (2001) for a review.

The evidence of this success is most clearly seen in recent work by Altman et al. (2003). They used 1994-95 claims data from Massachusetts state employees to examine the enrollee mix and costs of care provided by indemnity and HMOs in eight medical conditions. The study found that the HMOs had lower costs. Fifty-one (51) percent of the difference could be attributed to a healthier draw of enrollees, 5 percent to differences in treatment intensity, but 45 percent could be attributed to lower prices that the HMOs had negotiated with providers. Some of the price differences were dramatic. For example, the HMOs, on average, paid \$21,302 for angioplasty after a heart attack while the indemnity plan paid \$40,662!

Managed care plans have had proven success in selective contracting. They should return to their strengths by providing relatively narrow networks of providers who have agreed to substantially lower prices. Further, they should abandon the utilization management techniques that have shown themselves to offend patients and providers without affecting utilization. Finally, these narrow panel managed care plans can also offer arrangements tied to health savings accounts. The comparative advantage they offer is the ability to pass on their negotiated provider price concessions to their subscribers.

## **b. GOVERNMENT ACTIONS TO ENHANCE PRICE CONSCIOUSNESS**

### **1. ELIMINATE CERTIFICATE OF NEED LAWS**

Certificate of Need (CON) laws were enacted in the 1970s to try to prevent duplication of services in an era when hospitals were paid on a cost-based basis. The federal impetus for such laws ended in 1987. Yet in 2004, 36 states have at least one category of health care service covered by a law; 27 states cover hospitals (AHPA 2004). These and other states are considering legislation extending the reach of CON laws to specialty hospitals and freestanding surgical centers. Yet, there is virtually unanimous research that CON has been ineffective in controlling health care costs (Morrisey 2005, Salkever 2000, Conover and Sloan 1998). In a time when managed care plans have demonstrated the power of selective contracting and using market forces to negotiate lower prices and consumer directed health plan advocates are calling for consumers to comparison shop based upon price and quality, CON serves to restrict the availability of competitors and to keep prices high. As the Federal Trade Commission and the U.S. Department of Justice declared in their recent joint report:

“States with Certificate of Need programs should reconsider whether these programs best serve their citizens’ health care needs. The Agencies believe that, on balance, CON programs are not successful in containing health care costs, and that they pose serious anticompetitive risks that usually outweigh their purported economic benefits. Market incumbents can too easily use CON procedures to forestall competitors from entering an incumbent’s market” (FTC/DOJ 2004, p. 22).

### **2. REPEAL ANY WILLING PROVIDER AND FREEDOM OF CHOICE LAWS**

The key to managed care plan success is selective contracting. Any willing provider (AWP) and freedom of choice (FOC) laws undercut the ability of plans to trade volume for price. AWP



laws require that any covered provider willing to accept the terms and conditions of a managed care contract must be accepted into that plan's network. A hospital or physician group, for example, may be willing to quote a low price for services if the managed care plan assures them of a particular volume of patients. Suppose they enter into a service contract. In the presence of an AWP law other hospitals or physician groups in town can insist on having an identical contract. As a result, the managed care plan cannot assure the volume of patients that the original hospital was expecting. Without the assurance of volume, that hospital is unlikely to offer as low a price. Indeed, the preferred strategy would seem to be to wait for someone else to enter into a contract and then insist on the same terms. The upshot is that the managed care plan is unable to negotiate as low a price. FOC laws require the managed care plan to allow its subscribers to use providers outside the plan's network without having to pay the full price. Again this undermines the ability to use selective contracting to obtain lower prices.

Vita (2001) examined the effects of AWP laws on the state per capita health care spending. He found that states with broader AWP laws had spending levels that were \$35 to \$50 higher, other things equal. Morrisey and Ohsfeldt (2003/04) used Vita's methodology to examine the effects of AWP and FOC laws on HMO market shares. They concluded that the presence of broader laws was associated with HMO penetration rates that were 6 percentage points lower. Both of these studies probably overstate the actual effects. Nonetheless, if managed care is to re-emerge as a vehicle to contain costs and if they need to be allowed to structure their networks as they see appropriate—and rise or fall on the market test.

### 3. CONTINUE TO APPLY THE ANTITRUST STATUTES TO HEALTHCARE

One explanation for the retreat from narrow network managed care plans is consumer backlash against health plans that imposed intrusive and ineffective utilization management. A second explanation is that there has been a consolidation among providers as they have sought to obtain market power. Muris (2002) reported successful actions by the FTC to stop what he categorized as “naked price fixing” among physicians. Indeed, the FTC has completed actions against physician groups in San Francisco and in Ft. Worth during 2004 in which the groups will stop what have been referred to as efforts to fix prices (FTC 2004). Blue Cross and Blue Shield Association (2002) has also argued that consolidation on the part of hospitals is a key factor behind the increasing health care costs of the late 1990s and early 2000s.

To the extent that consolidation among providers exists it may raise or lower costs and prices. On the one hand, if the consolidation has the effect of reducing capacity in a relevant market, it has the potential of allowing the remaining providers to sell their services at higher prices. On the other hand, if the consolidation allows a reduction in the costs of production, perhaps because of the elimination of administrative overhead or the full utilization of labs or specialized facilities, costs and prices may be reduced. The effects of consolidation depend upon the individual circumstances.

The existing rigorous recent evidence on the effects of provider consolidation in health care is thin and inconsistent. Dranove et al. (2002) examined the effect of greater managed care penetration on physician and hospital consolidation between 1981 and 1994. They concluded that the decline in the prevalence of solo physician practitioners is more likely related to efficiency issues than to efforts to raise prices. In contrast, they found that in the average metropolitan hospital market managed care penetration was associated with the equivalent of a reduction from more than 10 to less than 7 equal-sized hospitals. They suggest that this may be related to efforts of hospital providers to reduce competition. However, Town and colleagues (2005) report that hospital consolidation over the 1990s was not a result of the “revolution” in managed care.

The point of this is only to call for continued vigilance with respect to the health care marketplace. If price comparisons and negotiations are to play an important role in controlling health care costs, then antitrust regulators must continue to examine suspicious conduct.



## 4. DEREGULATE THE GROUP INSURANCE MARKET

Since the mid 1970s the states have aggressively regulated the group health insurance market. By 2004 the states had enacted over 1,800 insurance mandates (CAHI 2004). These laws include requirements for coverage of specific types of providers, such as chiropractors and psychologists, specific types of services, such as mammograms and alcohol abuse treatment, and specific groups, such as newborns and handicapped dependents. The rationale for these laws is difficult to justify in terms of market failure. Rather, they are more easily explained as efforts to expand the market for the services of provider groups. To the extent that employees and their employers don't value these coverages, the effect of the laws is simply to raise the cost of insurance. Indeed, if employees and their employers do value the coverages sufficiently, one would expect them to buy the coverage without governmental insistence. Jensen and Morrissey (1999) argue that mandates fall disproportionately on small employers. Large firms are able to avoid most mandates by being self-insured under federal law. Sloan and Conover (1998) argue that one-fifth to one-quarter of the number of uninsured can be attributed to the presence of state insurance mandates. The states should repeal these mandates and allow groups to purchase coverage for only the mix of health services that they value.

The states have also enacted numerous "small group reforms." As we noted in Chapter V, these provisions have not succeeded in increasing the number of insured. Instead, the literature suggests that limiting medical underwriting and pre-existing condition clauses have the effects of making insurance more expensive for low-risk groups, while subsidizing it for higher risk groups. The states should end these underwriting restrictions and allow those wishing to buy coverage at rates that are sufficient to cover their own expected claims experience. If the residents of a state wish to subsidize the insurance costs of high risk individuals, they should do so by expanding their state high risk pools. These programs have the advantage of systematically defining eligible people and spreading the cost of the program to taxpayers generally.

## 5. PROVIDE INFORMATION ON PRICES AND QUALITY

One of the difficulties in health care is that the product is often complex, the outcome unclear and information about prices, quality and effectiveness is hard to find and interpret. However, there are other complex technical services in which an infrastructure of information has developed. Personal computers are a good example. In health care such an infrastructure has not yet emerged. One of the reasons for this is the widespread presence of health insurance. It has served to reduce the gains from searching (Frech and Ginsberg 1978).

There are two mechanisms that could be implemented to enhance the flow of information. These are the subsidization of reliable information on the price and quality of services provided, and the identification of effective procedures.

It should be noted immediately that the provision of better information will not necessarily result in lower prices. In a well-insured population what search that does go on is targeted on quality and service with little regard for price. This is rational. If there is almost no gain from choosing a lower cost provider, why would anyone do so? If consumers had a larger stake in finding a lower price, then better information will result in searching along both price and quality dimensions.

In this vein, large employers, local coalitions, state or local governments, and potentially private firms could collect information on the relevant prices actually charged by local providers for well-defined products. Normal deliveries, strep throat cultures, and bypass surgery are reasonable examples. Two points are immediately obvious. First, the price has to be the relevant price. Hospital billed charges are not relevant if the employer's insurance plan has negotiated a discount. The relevant information is what the employee would have to pay out-of-pocket at provider A vs. provider B. One might start by publicly reporting the weighted average price of common selected treatments and procedures across providers.



The second point is that quality also matters. In the absence of better quality information, price may serve as a measure of quality, with higher prices signaling better quality. Thus, better information must necessarily involve some measures of the effectiveness of treatments and the relative quality of providers. There have been efforts to provide information on hospital quality. The Health Care Financing Administration (now Centers for Medicare and Medicaid Services (CMS) released information on hospital risk adjusted mortality during the late 1980s and early 1990s. These met with limited success. Menemeyer et al. (1997) examined the effect of the release of this information on hospital admissions. They concluded that the program had no effect. There are two possible explanations for this. One is that the quality information may have been so sufficiently flawed that it was discounted by individuals and insurers. This was certainly the view that hospitals with poor scores advanced in their local press. An alternative explanation, advanced by some at HCFA, is that consumers were so conditioned to all providers being of good quality that there is a long-term process of discovery that needed to be undertaken.

In contrast, Cutler et al. (2004) report that in the first decade of the New York State Cardiac Surgery Reporting System, those hospitals with lower risk adjusted scores lost relatively healthy cardiac patients to other hospitals—suggesting that relatively healthy patients with some time to choose, selected other hospitals, or that poorly performing hospitals and/or their surgeons stopped providing such care. Dranove et al. (2003) found, however, that provider report cards can lead to patient selection behavior on the part of physicians that can lead to poorer outcomes, particularly for sicker patients. Thus, information on provider quality can affect hospital use, but it is very important to get the risk adjustment methodology correct.

In addition to specific state efforts at quality reporting, CMS is now providing information on nursing home quality through its Web site. Such efforts need to be evaluated, but are certainly steps in the right direction.

Information on health plan quality is also being developed and released. Here, too, the available (and early) evidence is mixed. Chernew and Scanlon (1998) used information on Health Plan Employer Data Information (HEDIS) plan quality scores to estimate the effect of such information on health plan choice by employees. They concluded that the information had little impact on choice. More recent work by Chernew et al. (2004) examined the use of HEDIS and Consumer Assessment of Health Plan Survey (CAHPS) by employers in choosing plans for their employees. Based upon the 17 large employers in multiple markets, they concluded that employers were more likely to offer plans with strong absolute and relative HEDIS and CAHPS performance measures.

Much more work needs to be done on measuring quality (and price) but these investments are essential if consumers and employers are to be able to compare providers and health plans based on price.

## c. THE TAX TREATMENT OF HEALTH INSURANCE

The largest single change that would enhance price competition in the health insurance industry would be the elimination of the tax exemption for employer-sponsored health insurance. It would lead to significant changes in the health services market as well. Such an expansion in the tax base could be packaged with a reduction in the overall tax rates, leaving tax revenues unaffected. I discussed earlier how the tax exemption effectively reduces the price of health insurance. If an employee is in the 28 percent federal income tax bracket, faces a 3 percent state income tax and pays a combined Social Security and Medicare payroll tax of 15 percent, the price of health insurance is reduced by 46 percent. From the empirical literature we know that health insurance expenditures are relatively price sensitive. Tax changes of this magnitude coupled with that degree of price sensitivity would have dramatic effects on the market.



In such a scenario we could anticipate three results. First, we can anticipate that the nature of coverage will change significantly. Those benefits that cover inexpensive medical services and services that have very high or very low probabilities of occurrence are likely to see significant reductions in demand. Thus, we should expect to see reductions in the demand for dental, vision and mental health services (Phelps 1982). Coverage for expensive, moderate probability services such as hospital care would likely continue. Second, we should expect to see many more insurance packages that have high deductibles and significant copayment features. However, these plans will also have stoploss provisions that limit the annual out-of-pocket expense to some maximum. These events would come about as people examine the coverage they have and the price they have to pay for it. Employers are likely to be responsive to worker preferences for more limited benefits and higher money wages. Third, the number of uninsured is likely to increase. When faced with the full price of health insurance, some employees will be unwilling to buy any.<sup>6</sup>

Gruber and Lettau's (2004) estimates of the tax-price elasticity of health insurance were discussed in Chapter V. As part of their analysis they also conducted some simulations of the impact of changing tax policies. They estimate that if the complete tax subsidy for health insurance were eliminated, it would reduce employer-sponsored health insurance spending by 45 percent. Nearly two-thirds of this effect would come from reduced covered spending. These are the elimination of some covered services, higher deductibles, higher copays, etc.

The remaining one-third comes from some employers dropping coverage. Of course, this does not imply that one-third of those newly without employer coverage will have no health insurance coverage. Since the incentive to buy one's health insurance through an employer is reduced due to the lack of tax subsidy, some employees would find it preferable to buy their own coverage in the non-group market.

A less drastic change in tax policy would make employer-sponsored health insurance subject to federal and state income taxes, but would not add this form of compensation to the payroll tax base. Gruber and Lettau suggest that this would reduce employer-sponsored health insurance spending by approximately 30 percent. It seems likely that this change would have a relatively greater impact on higher income employees who disproportionately pay income taxes and a smaller impact on lower income earners who disproportionately pay payroll taxes.

It turns out that an equally effective means of eliminating the tax subsidy for health insurance is the elimination of federal and state income taxes and payroll taxes. In such a scenario, wages and health benefits would face the same zero tax and there would be no incentive to alter the wage-benefit mix to take advantage of the tax treatment of either. Just as I do not anticipate the elimination of the personal income tax on wages, I do not anticipate that the tax exemption for health benefits will be eliminated!

However, there are at least two proposals to substantially change the tax treatment of health insurance benefits. Pauly et al. (1991) and Butler (1991) have proposed that, among other things, the tax exemption for employer-sponsored health insurance be eliminated. In its place they recommend that a refundable tax credit be put in place for the purchase of health insurance.<sup>7</sup> (President Bush has proposed a much more limited version of a tax credit that only applies to uninsured low income households and does not end the tax exclusion.) Under current

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<sup>6</sup> This implies a role for government in the health care sector: to provide access to insurance and/or health services to those unable to purchase care on their own. The public policy question is then clearly framed as well. How much does this society wish to spend on the health care of those unable to buy their own?

<sup>7</sup> A refundable tax credit is one in which someone who has a tax liability which is smaller than the credit would still receive the full credit. In this case, in the form of a refund check.



tax policy the subsidy increases with one's marginal tax rate. Those in the 28 percent tax bracket get a larger tax subsidy than those who are in the 15 percent federal tax bracket. Under a credit everyone would get the same tax subsidy, say \$1,200 per year, regardless of whether they purchased health insurance through an employer or as an individual.

For higher income individuals, the effect would be analogous to the elimination of the tax subsidy. "Fringe" coverages would be less common and the coverage of other medical services would tend to have higher deductibles and larger coinsurance features. Stoploss provisions would be more common. Of course, these effects would not be as large since the tax subsidy has not been eliminated, only reduced. The size of the effects would depend upon the actual size of the tax credit.

For lower income individuals, the effects tend to be just the opposite. The tax credit will increase the size of the tax subsidy for health insurance. These individuals will have an incentive to search first for coverage for large loss, low to moderate probability events like hospitalization and then add physician and other services. However, the key point is that they have a greater incentive to obtain some coverage under this system than they do currently.

It is also the case under these plans that individuals who are not affiliated with the work force, or whose employer does not provide health insurance will still be eligible for the credit. Thus, the tax advantage would no longer be limited only to those who get insurance through the work place. Our existing evidence is less than ideal, but suggests that the lower effective price would encourage the purchase of some health care coverage.

Some have suggested that a tax credit de-linked to employer-sponsored plans would lead to sizable reductions in the role employers play in the purchase of health insurance. I doubt that this is the case. There are three reasons why health insurance has been cheaper through the employer: the tax subsidy, administrative cost savings and underwriting advantages. The tax advantage would be neutralized under these proposals. However, employed people tend to be healthier than the unemployed and administrative costs are still lower in employer group plans. Employers will continue to play a major role.

Further, suppose the advocates of the tax credit are correct. The veil is lifted from employees and they now see how much they pay, in one form or another, for health insurance. Employees would have a greater incentive to search for the ideal mix of benefit and premium. However, individuals will only search until the expected additional net gain from finding a better policy just equals the costs of search. Employers have always had this incentive to search. When searching for 50 or 1,000 or 10,000 employees it is profitable to search longer. Small savings multiplied by dozens or thousands of employees are large. Employers should still be able to find and make better insurance deals than individual employees. And most employees will still get their insurance through the work place.

Since employers have always had the incentive to search, it is not clear that the breaking of the link between health insurance and the employer is a particularly relevant issue. The real effects of a tax credit plan come from the changes in the relative price of insurance faced by both high- and low-income individuals. The key element is the size of the tax credit. A large credit will give lower income individuals more incentive to acquire insurance, but will reduce the incentive for higher income people to reduce their "fringe" coverage. A smaller credit will not have as large an effect on expanding coverage among the uninsured, but will give higher income groups more incentive to limit their coverage.



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