Health Care Costs

The Consequences of Increased Cost Sharing

Charles E. Phelps
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PREFACE

This is the second in a series of Rand reports that explain how certain public policies and socioeconomic trends are likely to affect specific regions, industries, and individuals. The Rand Corporation has a continuing, strong commitment to research on these distributional consequences. Objective information improves the quality of the policy debate: When there is no consensus on the magnitude of gains and losses, policymakers must often rely on conflicting claims of affected parties. Further, policy actions may have major, unintended consequences. By identifying as many of them as possible, research can contribute to better, more comprehensive policies. Better understanding of distributional consequences may suggest policy designs that enhance the political feasibility of a desired change. Finally, such research contributes to the assessment of alternative policy proposals.

This report analyzes the possible distributional consequences of several government policies for controlling health care costs. Drawing on the results of Rand’s Health Insurance Study, it evaluates the potential savings from policies designed to increase cost sharing—deductibles and copayments—in both government and employer financed health insurance programs. It then examines how the cost of realizing these savings is distributed among major actors in the health care system—patients, doctors, hospitals, suppliers, insurers, and state and federal governments. The Rand Corporation supported this research and report from its own corporate funds.

This report should be of interest to those assessing alternative methods of affecting health care costs, to those designing and considering tax policy for the United States and for individual states, and to those concerned in general with understanding how changes in government policy differentially affect various classes of individuals and industries.

1For detailed description of the study, see Joseph P. Newhouse et al., Some Interim Results from a Controlled Trial of Cost Sharing in Health Insurance, The Rand Corporation, R-2847-HHS, January 1982.
SUMMARY

Stubbornly escalating health care costs have confounded policymakers for almost two decades. Faced with the apparent impotence of past cost control policies, the Reagan administration has proposed increased emphasis on pro-competitive, rather than regulatory, actions. A centerpiece of these actions is increased cost sharing—deductibles and copayments—in both government and employer financed insurance programs. The administration hopes that, by making consumers pay a greater share of medical care costs, utilization will fall, bringing a corresponding decline in expenditures.

This report examines the consequences of increased cost sharing by analyzing how two cost sharing proposals affect the major actors in the health care system—patients, governments, health care providers (doctors, hospitals, pharmaceutical manufacturers, suppliers, etc.), and insurers. The cornerstone of our analysis is the data from a remarkable social experiment, Rand's Health Insurance Study (HIS), which provides the basis for understanding how consumers alter medical care expenditures when confronted with different deductibles and copayments. Fieldwork for this experiment began in 1974 and ended early in 1982. Interim results used here are based on 40 percent of the observations that will ultimately be available.

Debate over cost sharing proposals must recognize that policies to control health care costs may affect part of the growth in those costs. Population growth and general inflation have (in the past two decades) accounted for 60 percent of the increase in health expenditures, whereas utilization and relative price increases have accounted for only 40 percent. This will continue to be true as long as utilization growth patterns and rising real prices for medical care continue at their current rates.

Increased cost sharing may be an important policy tool for controlling costs. Available research shows that consumers do, in fact, reduce their utilization when confronted with increased deductibles and copayments. According to the HIS interim results, when compared with full coverage, a 25 percent copayment reduces utilization and expenditures by 20 percent. Other cost sharing arrangements had equal or greater effects. The HIS results also indicate that:

- Cost sharing reduced both ambulatory and hospital care expenditures.
• Deductibles produced larger reductions in ambulatory than in hospital care.
• Cost sharing only for ambulatory care also reduced hospitalizations. The hospital saving was due principally to reduced admissions; cost per admission was unaffected.
• Cost sharing, when reduced in amount for low income families, affected high and low income patients alike; but children's hospitalization rates were unaffected.
• Utilization falls steadily as cost sharing increases.

Using these results, we examined the potential of cost sharing in both employer financed and government insurance programs.

The federal government is considering using the leverage it enjoys through the tax system to induce greater cost sharing in private employer financed health insurance plans. These plans account for 25 percent of the national health care bill. Currently, employers can fully deduct their contributions, which are also excluded from the employee's taxable income. Certain proposals would limit or eliminate the deductibility by employers or include all or part in employees' taxable incomes. By limiting the favored tax status of health insurance as an employer-paid fringe benefit and by adding or increasing deductibles and copayments and possibly dropping peripheral coverages (e.g., dental or outpatient psychiatric), these proposals seek to induce employers and employees to spend less on health insurance. With greater cost sharing, it is hoped that the growth in utilization and prices, hence expenditures, will slow or even fall.

Cost sharing in employer financed plans can be expected to produce substantial expenditure reductions. The amount would depend upon the precise form of the policy change and the consequent effect on insurance coverage, both of which present important uncertainties at present. Estimates of insurance premium levels at different net prices are combined with the HIS interim results to permit analysis of the consequences of taxing employees for half of employer-paid health insurance premiums. Preliminary analysis indicates employer-paid group health insurance premiums would fall by up to half ($30 billion). The attendant increases in cost sharing by employees and their families could cause health care expenditures to fall by $12 to $13 billion—nearly a 5 percent decline in the national health care bill. Assuming no offsetting change in tax rates, this change could raise approximately $17 billion for the U.S. Treasury.

1The term "employer financed plans" means employee health insurance paid for in some part by employers.
Hospital and physician revenues alone could fall by $7.6 and $3.8 billion, respectively. However, hospitals might be able to recover the portion of this revenue loss attributable to overhead costs by raising prices charged the remaining patients, the government, and insurers. The loss to hospitals might then be reduced to as low as $2.7 billion and the gain to the U.S. Treasury would fall marginally.

The net effect on insured employees (as a group) is uncertain. Employees with greater cost sharing will increase out-of-pocket medical expenditures, but lower utilization induced by cost sharing would reduce these costs. At the same time, they will receive increased salary and other fringe benefits to compensate for the reduced value of employer-paid health insurance. However, lower utilization might adversely affect the health status of employees and their dependents. This question is currently being analyzed as part of the HIS and results will be available shortly. The net effect will vary from individual to individual. Although generalizations are quite difficult, it is not necessarily true that individual employees will be made worse off by cost sharing.

The consequences of added cost sharing in Medicaid were also analyzed. (The administration has made no important new proposals to increase the cost sharing in Medicare, relying to date upon regulatory constraints on providers of care. In Medicaid, introduction of cost sharing is being considered.) To illustrate the effects of increased cost sharing, a 25 percent (income-related) copayment imposes over five times the cost sharing of the primary administration proposals. Even with this large cost sharing, the effects on total U.S. health expenditures are small (less than 1 percent decline), although Medicaid program costs could fall by 20 percent or more. Some reasons for the small effects on aggregate health spending include:

- Medicaid recipients account for a small fraction of total U.S. health costs.
- Half of Medicaid expenditures are for nursing homes and treatment for permanently disabled patients. These expenditures are traditionally exempt from cost sharing proposals.
- The response to cost sharing is partly muted by the presence of large numbers of children in Medicaid.

Despite the small aggregate effect, cost sharing in government programs could have some important distributional consequences: Medicaid recipients' outlays could rise; government program costs could fall substantially; health care providers' revenues could decline slightly—less than 2 percent for a sizable Medicaid copayment, for example.
ACKNOWLEDGMENTS

This research was supported by The Rand Corporation as a part of its continuing program to further the understanding of the consequences of various public policy choices through research. I am grateful to Joseph P. Newhouse, Albert P. Williams, and, especially, Bridger M. Mitchell, for guidance and instructive reviews of earlier versions of this manuscript. Joyce Peterson provided valuable assistance in preparation of this manuscript, and Helen Turin provided prompt and excellent editorial assistance; my thanks go to both of them. I particularly acknowledge the support and guidance of Richard Victor, without whom this study would have been at least incomplete, if not impossible to complete.
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1. INTRODUCTION

Escalating health care costs have baffled policymakers for nearly two decades. Today, with inflation abating, the continued rapid rise of those costs seems even more troubling. Past administrations have tried various forms of regulation to control costs with little success. As in other areas, the Reagan administration favors a market-oriented, pro-competition policy, at least as a complement to a more traditional regulatory approach. A central component of the pro-competition approach is reduced insurance coverage through increased cost sharing—deductibles and copayments. The administration seems intent on introducing or expanding cost sharing in both government insurance programs and employer financed insurance programs, which together account for about two-thirds of the nation’s personal health care expenditures.

This report examines the potential of cost sharing for controlling costs in both government and employer insurance programs. It also analyzes the distributional consequences of cost sharing—the effects on health care providers (hospitals, physicians, and dentists), suppliers, and insurers; the savings to state and federal governments; and the additional costs incurred by affected consumers of medical care.

This analysis depends primarily on data provided by a remarkable social experiment that The Rand Corporation conducted during the past decade—the Health Insurance Study (HIS). That study’s results permit prediction of how consumers of medical care will change their spending patterns in response to different copayments and deductibles. The experimental fieldwork began in 1974 and ended early in 1982. The final results will be available soon. Because cost sharing has become such an important issue today, Rand has published some interim results based on about 40 percent of the observations that the study will ultimately use to produce the final results.

In addition to those interim results, this analysis uses government data on health expenditure by source, program, and type of health care service. When the necessary numbers are not readily available we have made informed guesses about their magnitudes. After the final results of the experiment are available, we plan to reexamine our results, assessing the sensitivity to changes in key assumptions and cost sharing parameters that the experiment results will not elucidate.
This report predicts that increased cost sharing in public and private health insurance programs would have an effect on utilization of different health care services. Rand's HIS results indicate that cost sharing through copayments and deductibles does cause people to use substantially fewer health care services. For reasons explained here, the HIS shows that policy changes to stimulate greater cost sharing in employer financed plans could substantially reduce expenditures. Although increased cost sharing in Medicaid may have important distributional effects and promises sizable program saving, it will have very little effect on the aggregate national health care bill. The consequences of increased cost sharing in Medicare are not analyzed here. The administration has offered no proposals to do this.\(^1\) If such changes were to be enacted, the Medicare recipients would at least partly compensate with increased supplemental insurance.\(^2\) The result might be sizable program savings but have a much smaller effect on health care expenditures.

Section II reviews the evidence on the nature and causes of escalating health care costs and briefly examines the range of cost control policy options. Section III examines the evidence provided by Rand's HIS that cost sharing affects utilization. Sections IV and V use these interim results from the HIS to analyze the cost sharing consequences of specific proposals to increase employer financed insurance programs and Medicaid. Section VI contains conclusions of the analysis.

\(^1\) Medicare deductibles for hospital care increase automatically with hospital costs, but only to keep that deductible equal to the average cost of a day's hospitalization in the United States. Through time, this should have little if any effect on hospital use. In addition, the deductible for Part B, covering physician and other services, was recently increased from $60 to $75, but this change did not even offset increases in general inflation over the two previous years. Thus, this change should not be expected to lead to very great reductions in utilization either.

\(^2\) Such a change is much more likely in the case of Medicare than for employer-group plan cost sharing because more Medicare cost sharing would not affect the price of supplemental insurance; changing the employer group insurance tax treatment directly alters the price of insurance.
II. HEALTH CARE COSTS AND POLICY OPTIONS

Rising health care expenditures have been a persistent problem for more than a decade. Medical care prices have increased more than eight-fold since 1965; personal health expenditures have increased seven-fold; and the share of GNP attributable to health care has increased from 6 to 10 percent. At the same time, government expenditures on health care will have increased from $17 billion ($85 per capita) in 1965 to $108 billion ($464 per capita) in 1982. These changes have captured and held the attention of consumers, employers, and policymakers.

COMPONENTS OF RISING HEALTH CARE EXPENDITURES

Past health expenditure increases have no single source and allow for no simple policy solution. They are the net result of general inflation, population growth, changes in the relative price of medical care, and expanding utilization. Figure 1 shows that, since 1965, general inflation has accounted for nearly half to two-thirds of the rise in health care expenditures. Population increases accounted for a further 7 to 8 percent. Increases in medical care prices in excess of general inflation have accounted for small amounts—4 to 14 percent—of the total, although there is no logical reason to believe that inflation-adjusted prices of health care might not fall, rather than rise, under different health care policies. Increases in utilization have contributed 23 to 43 percent of the total rise over the last two decades.

Roughly half to three-quarters of the rise in health care expenditures in the last two decades resulted from forces that cost control policies cannot affect—general inflation and population trends. However, after adjustment is made for these forces, utilization has accounted for 70 to 90 percent of the remaining expenditure increases that cost control policies could influence. Rising utilization represents

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1For example, different R&D choices might have led to decreases in health care prices, after adjusting to inflation. This, in fact, did occur for pharmaceuticals over much of the past 20 years.

2In these data, "increased utilization" is defined as all remaining expenditure increases after population and price changes have been netted out.
increased numbers of visits, laboratory tests, x-rays, the level of specialization of providers, the number and sophistication of special hospital units, and many other personnel and procedures. Although different health policies—including cost control, R&D strategy, and pro-competitive strategies—might lead to different paths of inflation-adjusted medical prices, any effective control of rising expenditures must squarely meet the issue of rising utilization.

PROPOSED POLICIES FOR COST CONTROL

Confronted with increasing expenditures, policymakers have at hand two generic strategies—regulation and increased competition. Both approaches have found favor with various administrations in Washington. Past administrations leaned more toward regulation. The current administration more actively pursues a "market-oriented" approach that invariably includes, among other things, health maintenance organizations (HMOs), innovative insurance coverages (such as "preferred provider" plans), and cost sharing by consumers when they receive medical care.
Regulation—aimed at health care providers—seeks to control the type, quantity, quality, and price of health care provided. Much past regulation was carried out through public programs—primarily Medicare and Medicaid reimbursement rules. Still other cost control regulations were aimed at both public and private expenditures—e.g., certificates of need. Most recently, the Commonwealth of Massachusetts (following New York State) has introduced a regulatory plan that changes the whole method of paying hospitals: It caps each hospital’s allowed expenditures according to a formula that uses 1981 expenses as a reference point.

For an anti-regulation administration, cost sharing becomes an increasingly popular alternative or complement to cost control regulation. Comprehensive health insurance policies and government programs are now widespread, at least for hospitalization. Often they provide “first-dollar” coverage (that is, no deductible) and no copayments. Such is the case with Medicaid and some private plans. Frequently, deductibles and copayments are small. In such circumstances, consumers of medical care receive free, or nearly free, health care. Many argue that this leads to overutilization and, potentially, higher prices for care received. Enhanced cost sharing—larger deductibles and copayments—might alleviate this problem. If increasing copayments and deductions caused a drop in utilization and prices, health care expenditures would rise more slowly, if not fall. Proposals for increased cost sharing are aimed at controlling both Medicaid and private health care expenditures. The evidence on the effects of cost sharing—focusing on the results of the Rand Health Insurance Study—are incorporated first in an analysis of cost sharing in employer financed health insurance programs and then of the Medicaid program.

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3See Joekow, 1981, for an excellent summary and analysis of hospital regulation in the pre-Medicare era.

4As we will show, cost sharing also has attractions for an administration seeking to raise revenues and cut expenditures in order to reduce budget deficits.
III. HOW COST SHARING AFFECTS HEALTH CARE EXPENDITURES

Prospective health care cost containment policy changes raise several important questions. First, will increased cost sharing in Medicaid or employer financed insurance arrangements actually reduce health care expenditures—and by how much? Second, how will cost sharing transfer wealth among the different participants in the health care system? To predict the effect on expenditures and the distributional consequences requires estimates of how individuals alter their health care use when confronted with increased cost sharing. The questions of particular interest are:

- How much do consumers reduce expenditures on health care when faced with copayments or deductibles?
- Is the response the same for adults and children? The rich and the poor?
- Will cost sharing for only ambulatory services also reduce hospital expenditures?
- Will the response vary for different types of medical care services—hospitalization, doctor visits, drugs, laboratory services, etc.?
- By reducing health care expenditures, does cost sharing impair health status—ultimately making it a penny-wise, pound-foolish policy?

EVIDENCE FROM PREVIOUS RESEARCH

The many previous studies reach no consensus on these important questions. Just a decade ago, a leading authority testifying before the Senate Subcommittee could cite no evidence that consumers would use health services less if they faced copayments or deductibles (Fein, 1971). Subsequently, a number of studies have suggested that the degree of cost sharing does affect use. However, these studies all have their limitations. Their estimates differed by a factor of three or more.

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1See Beck, 1974; Enterline et al., 1973; Feldstein, 1978; Newhouse, 1978; Newhouse and Phelps, 1976; Newhouse, Phelps, and Schwartz, 1974; Phelps and Newhouse, 1972, 1974; Rose and Huang, 1973; Scitovsky and McCall, 1977; Scitovsky and Snyder, 1972.
in how much use of health services would increase if the average uninsured person became fully insured.

Even more uncertainty exists about how cost sharing would affect different populations. For example, some believe that cost sharing primarily affects the poor and has little if any effect on others. Evidence from Canada suggests that larger families and the poor respond relatively more to cost sharing (Beck, 1974). However, one study in the United States detected no marked difference in how different income groups responded (Newhouse and Phelps, 1976). In another case, lower income groups did respond more in percentage of use than higher income groups, but the absolute changes for each were similar (Phelps and Newhouse, 1972; Scitovsky and Snyder, 1972).

As for possible differences between children and adults, some believe that children's demand for health services is less sensitive to cost sharing than adults'. They maintain that much of children's demand is predictable and that cost sharing should be eliminated for them (Marmor, 1977). However, the rate at which children visit physicians has been notably more sensitive to income than adult rates have. This suggests that, on average, children's use of medical services may be more discretionary than adults'. But in more recent data, this trend is not nearly so apparent (NCHS, 1979).

Previous studies also yield conflicting evidence about how cost sharing for ambulatory care increases or decreases use of hospitals. Some argue that fully insuring ambulatory care would actually reduce total expenditure by encouraging preventive care and more appropriate use of the hospital (Roemer et al., 1975). Other evidence suggests the contrary (Hill and Veney, 1970; Lewis and Keairnes, 1970).

In sum, nonexperimental data suggest that use will vary with the amount of cost sharing but are inconclusive about the magnitude of this effect and its possible variation among different populations. No reliable information is available as to effects on different types of health care services and health status, and expert opinion varies widely.

These past studies suffer from lack of information on individual characteristics, on actual cost sharing facing individuals, or on details of individuals' health care use. That prompted the federal government to sponsor a social experiment on the effects of cost sharing—The Rand Corporation Health Insurance Study (HIS), which now provides a level of accurate knowledge about these questions unavailable from past sources and studies.
THE RAND HEALTH INSURANCE STUDY (HIS)

The Rand Health Insurance Study is by far the most extensive, most careful study of its kind. To conduct the study, Rand acted as the health insurer for 7706 persons (2756 families) in six localities in the United States. Each family was randomly assigned one of several health insurance plans. Each plan had different deductibles or copayments. Some families were enrolled for three years, others for five years. During this period, both health care expenditures and health status were carefully monitored. The scope of benefits included not only those services normally covered by health insurance (hospital, surgical, physician, drugs, supplies, etc.) but all dental care and the services of a broad array of "paramedical" providers, including podiatrists, Christian Science healers, chiropractors, and mental health professionals. The insurance plans were designed to allow direct comparison of health care expenditure patterns under different cost sharing arrangements.

The HIS Plans

Family Deductible Plans. In these plans, families paid for 95 percent of their own medical care, subject to a maximum family outlay of either 5 percent, 10 percent, or 15 percent of family income—in each case subject to an overall maximum or deductible of $1000. (For example, a family with income of $15,000 per year on the 5 percent plan would face maximum family out-of-pocket expenditures of $750, after which the insurance would pay 100 percent of all health costs. A family with income of $30,000 facing the same plan would have overall limits of $1000 before full coverage was in effect.)

Copayment Plans. Plans also were included in which the individuals would pay 25 percent of their medical care costs (the 25 percent plan) or half their own costs (the 50 percent plan), in all cases subject to overall income-related limits exactly as in the Family Deductible Plan.

Individual Deductible Plan. These plans contained a flat deductible of $150 per person (with an overall $450 per family maximum), which applied only for ambulatory care. Hospital care in these plans was always available at no cost to the patient. These plans allow a
direct test of the effects of increased ambulatory cost sharing on hospital use.

**Free Care Plan.** A portion of the families were assigned to plans paying all medical costs incurred by the family, with essentially no limitations on payment.

**Interim Results**

The HIS produced several major *interim* results that are relevant to an analysis of cost sharing:

**Deductibles and copayments considerably reduce expenditures on both ambulatory and hospital care.** Table 1 indicates how much expenditures decrease under various cost sharing plans—compared with the Free Care Plan. Total expenditures for ambulatory and hospital inpatient care fall steadily as coinsurance rises. Patients faced with a 25 percent copayment plan, rather than completely free coverage, spent about 20 percent less on all medical services. Those faced with a 50 percent copayment spent 33 percent less. For the Family Deductible Plan, the reduction is nearly as great as under the 50 percent plan. Finally, families responded to the Individual ($150) Deductible Plan by reducing total expenditures 23 percent below the

Table 1

<table>
<thead>
<tr>
<th>Insurance Plan</th>
<th>Total Outlay</th>
<th>Ambulatory Care</th>
<th>Hospital Care</th>
</tr>
</thead>
<tbody>
<tr>
<td>25% copayment</td>
<td>19</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>50% copayment</td>
<td>33</td>
<td>35</td>
<td>29</td>
</tr>
<tr>
<td>Income-related</td>
<td>31</td>
<td>39</td>
<td>25</td>
</tr>
<tr>
<td>family deductible(^a)</td>
<td>23</td>
<td>25</td>
<td>12</td>
</tr>
<tr>
<td>$150 individual deductible(^b)</td>
<td>28</td>
<td>30</td>
<td>20</td>
</tr>
</tbody>
</table>

**SOURCE:** Newhouse et al., 1982, Tables 3, 9.

\(^a\)Average of effects for plans with deductibles of 5 percent, 10 percent, or 15 percent of income, each of which also contained a maximum $1000 limit.

\(^b\)For ambulatory services only.

"These results must be designated "interim" because they are based on only about 40 percent of the data that will ultimately be available. Moreover, although the HIS examined the effects on both utilization and health status, only the interim results on utilization are currently available. Complete results on both should be available in 1984."
free-care level, even though that deductible applied only to ambulato-
ry care.

Deductibles affect ambulatory expenditures considerably more than they affect hospital expenditures. Under the Family Deductible Plans, ambulatory care expenditure was reduced by 39 percent compared with a smaller 25 percent reduction in hospital care. (Expenditure appeared similar in each of the Family Deductible Plans.) This difference evidently reflects the fact that once a patient is admitted, the hospital costs quickly reach the deductible limit. Thereafter, coverage is complete, and the patient and his physician have no financial incentive to curb additional costs.

Cost sharing only for ambulatory care produces substantial reductions in both ambulatory and hospital care. One argument against cost sharing, especially for ambulatory care, is that it might actually raise overall costs: People might delay receiving treatment, and physicians might hospitalize people who could be treated earlier as outpatients. The HIS results refute this. The Individual Deductible Plan theoretically gave the greatest incentives for excessive hospital use. It imposed a $150 deductible on ambulatory care but covered hospital care completely. Yet, as Table 1 shows, people in that plan spent 12 percent less on inpatient care than people in the Free Care Plans. This finding could arise from several causes. For example, if people reduced use of outpatient services, doctors might have less oppor-
tunity to identify illnesses that usually lead to possibly unnecessary hospitalization.

Cost sharing plans do not affect costs per hospital stay. People with differing levels of coverage exhibited no systematic differences in hospital costs per stay. The reductions in hospital expenditure indicated in Table 1 are due entirely to reduced admissions under different plans, and the data show that admissions declined with increased cost sharing. One reason for this result is that in 70 percent of admissions hospital costs exceed deductible limits, in which case any additional services are not subject to cost sharing.

If cost sharing limits are related to income, high and low in-
come families respond about the same. Under the Free Care Plan, low income people spent as much on health services as higher income people. And as Table 2 shows, each HIS cost sharing plan had the same effects on high and low income insureds. When cost sharing limits are income related, poor families were more likely to exceed them and not face cost sharing for any additional use. Nevertheless, because cost sharing did reduce use, these findings imply that cost
Table 2

PERCENT REDUCTION IN EXPENDITURE COMPARED WITH FULL COVERAGE

<table>
<thead>
<tr>
<th>Insurance Plan</th>
<th>Fitchburg High Income&lt;sup&gt;c&lt;/sup&gt;</th>
<th>Fitchburg Low Income&lt;sup&gt;c&lt;/sup&gt;</th>
<th>Franklin County High Income</th>
<th>Franklin County Low Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>25% copayment</td>
<td>11</td>
<td>10</td>
<td>18</td>
<td>17</td>
</tr>
<tr>
<td>50% copayment</td>
<td>29</td>
<td>29</td>
<td>23</td>
<td>22</td>
</tr>
<tr>
<td>Family deductible&lt;sup&gt;a&lt;/sup&gt;</td>
<td>25</td>
<td>24</td>
<td>35</td>
<td>33</td>
</tr>
<tr>
<td>Individual deductible&lt;sup&gt;b&lt;/sup&gt;</td>
<td>29</td>
<td>28</td>
<td>29</td>
<td>28</td>
</tr>
</tbody>
</table>

<sup>a</sup>Average of effects for plans with deductibles of 5 percent, 10 percent, or 15 percent of income, each of which also contained a maximum $1000 limit.

<sup>b</sup>For ambulatory services only.

<sup>c</sup>High and low income groups represent upper and lower thirds of the income distribution.

sharing not related to income would have caused low income people to reduce their use disproportionately more than higher income people.<sup>13</sup>

Cost sharing plans affect ambulatory care for adults and children about equally, but they have no significant effect on children’s hospital use. Table 3 shows the percentage of response for children and adults, relative to free care, under the various plans. Cost sharing reduces adult hospital admissions by up to 38 percent, but it has no statistically significant effect on children’s admissions.

Health Status Effects

The effects of cost sharing on health status are now being analyzed. We do not yet know whether the reduction in utilization in response to cost sharing adversely affects health. However, the HIS study took extensive measurements of participants’ health, and the sample size should ultimately permit identification of any major changes in health that the additional services affect. The results should be available shortly.

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<sup>13</sup>Because the rate of use was the same in the HIS income-related plans, but lower income families move into the range of zero copayments sooner, it must be true that lower income people would use less care overall without the income limit on spending.
<table>
<thead>
<tr>
<th>Insurance Plan</th>
<th>Child</th>
<th>Adult</th>
</tr>
</thead>
<tbody>
<tr>
<td>25% copayment</td>
<td>-5</td>
<td>-22</td>
</tr>
<tr>
<td>50% copayment</td>
<td>+2</td>
<td>-38</td>
</tr>
<tr>
<td>Family deductible&lt;sup&gt;c&lt;/sup&gt;</td>
<td>-20</td>
<td>-29</td>
</tr>
<tr>
<td>$150 individual deductible&lt;sup&gt;d&lt;/sup&gt;</td>
<td>+16</td>
<td>-22</td>
</tr>
</tbody>
</table>

<sup>a</sup>None of the results are statistically significant.

<sup>b</sup>All results are statistically significant at 5 percent or smaller probability level.

<sup>c</sup>Average of effects for plans with deductibles of 5 percent, 10 percent, or 15 percent of income, each of which also contained a maximum $1000 limit.

<sup>d</sup>For ambulatory services only.
IV. COST SHARING IN PRIVATE PROGRAMS

THE MECHANISM FOR INCREASED COST SHARING

The federal government is currently considering using the leverage it enjoys through the tax system to induce greater cost sharing in private employer financed health insurance plans.1 These plans finance 25 percent of the national health care bill (Table 4). Under current tax law, employers' payments for employee health insurance escape all income taxation (unlike many other forms of compensation) because it is an allowed business expense deduction but not taxable income to the employee. Administration proposals would limit the favored tax status of health insurance as an employer-paid fringe benefit, hoping to induce employers and employees to spend less on health insurance. Consumers will do this by adding or increasing deductibles and copayments and possibly dropping coverages of such services as dental or outpatient psychiatric care. As the HIS results show, reduced insurance coverage leads to utilization and expenditure reductions.

The policy debate has not yet focused on a specific proposal, but two types of arrangements are under consideration to change this favored tax status:2

- Limiting the tax deductibility of employer contributions;
- Including all or part of the employer's contributions in the employees' gross incomes for tax purposes.

These two different approaches could have very different consequences. More than a quarter of the nation's employees work for government or not-for-profit employers. As an empirical observation, government and not-for-profit employers are more likely to provide not only basic health insurance plans but plans that are more generous than average. For these reasons, limiting employer deductibility would probably have less than 75 percent of the effect on health care expenditures that taxing the employees' contributions would have.

Placing the tax liability on employers would make it more attractive for an employee to work for government or nonprofit firms than

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1 Employer financed plans means employee health insurance paid for in part or whole by employers.
for private for-profit employers. Currently, for-profit employers can offer employees some combinations of wages, health insurance, and other fringe benefits and count on income taxing authorities to "pay" part of the bill because such expenses are deductible against income. Nonprofit employers and governments do not pay income taxes, so their after-tax cost of paying identical employees an identical compensation package would be substantially higher. Thus, any proposal to limit the tax deductibility of employer contributions would initially raise employers' after-tax compensation costs, but leave government costs initially unaffected. The change would be largest in firms and industries that provide the most generous health insurance benefits. The long-run equilibrium effects are discussed below.

Apart from whether employers or employees are burdened with the initial effects of the tax change, policy designers may want to tax all or part of health care contributions. If part, they may tax a flat percentage (say 50 percent) of contributions; or, they may tax the amount by which contributions exceed some exempt amount (say $500). The former would affect all insured employees and their employers; the latter would affect only those employees and employers with relatively generous insurance coverage.

At present, the policy debate about cost sharing and employer financed insurance remains unsettled. Policymakers are still evolving options and strategies. This analysis examines the potential reduction in expenditures and the distributional effects of a hypothetical policy proposal that has larger changes in tax treatment of health insurance.

Table 4

<table>
<thead>
<tr>
<th>Source of Payment</th>
<th>Total ($ billions)</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private</td>
<td>166</td>
<td>60</td>
</tr>
<tr>
<td>Employer group insurance</td>
<td>70</td>
<td>25</td>
</tr>
<tr>
<td>Employer paid</td>
<td>62</td>
<td></td>
</tr>
<tr>
<td>Employee paid</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Individual policy insurance</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Out-of-pocket by individuals</td>
<td>92</td>
<td>33</td>
</tr>
<tr>
<td>Government</td>
<td>108</td>
<td>40</td>
</tr>
<tr>
<td>Federal</td>
<td>79</td>
<td>29</td>
</tr>
<tr>
<td>State and local</td>
<td>29</td>
<td>11</td>
</tr>
<tr>
<td>Total personal health care</td>
<td>275</td>
<td>100</td>
</tr>
</tbody>
</table>

than some proposals and smaller effects than others. This approach and these data can be applied to the range of proposals under consideration.

EFFECTS OF HYPOTHETICAL PROPOSAL ON INCREASED COST SHARING

Consider the consequences of a proposal that made 50 percent of the employer's contribution for health insurance part of the employee's taxable income. Under current law, the entire employer contribution is excluded from taxation. The employee chooses employment with a firm that pays the combination he prefers of taxable salary and tax-free health insurance (and other fringe) benefits. For example, to an employee in the 40 percent marginal tax bracket, a dollar of additional salary is worth only 60 cents after tax, but a dollar of additional health insurance is currently worth up to a full dollar. Because of the 40 percent tax subsidy, the employee would select more expensive (less cost sharing) coverage than he would without the subsidy. Our hypothetical proposal would reduce the subsidy by half—that is, a dollar of additional insurance would then be worth only 80 cents. In response, the employee would choose less expensive insurance with greater cost sharing.

Three questions must be answered to understand the effect of this or any such proposal on health care expenditures:

- How will changing the tax subsidy change the amount spent for an employee on health insurance?
- How will the components of the insurance package—coverages, deductibles, and copayments—change?
- How will utilization change in response?

After the tax change, health insurance will be a less valuable component of employee compensation. Employees will prefer less health insurance—greater deductibles and copayments or fewer services covered—and increased salary and other fringe benefits. In the unionized sector, employee pressure will be felt through unions seeking to realign the compensation package. Because the after-tax cost to the employer remains the same as it would otherwise, employer resistance should not be substantial. The transaction will occur unevenly.

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3The employer-group may purchase so much insurance coverage that an individual employee doesn’t fully value additional coverage. If so, a dollar of additional coverage would be worth less than a dollar, and the consequent effects of the tax reform would be reduced.
over time and across industries, as contracts expire over the subsequent 1-3 years and as some unions are more or less successful in shifting some of the burden to the employer with net increases in the new total compensation package (compared with what would otherwise have been).

In the nonunion sector, the reduction in insurance coverage and premiums would occur through the labor market adjustment process. Employees will indicate their preferences to their employers for less insurance and increased salary and other fringes. Employers can make employees better off at no additional cost by complying. If not, certainly competing employers will make such offers to unsatisfied employees. The speed of adjustment here is uncertain.

The consequences for aggregate labor supply are ambiguous. As compensation packages realign, there will be reduced incentive to enter the labor force (because of the reduced fringe benefit that is unrelated to hours of work for most employees) but increased incentives to work longer hours (because the hourly wage rate will rise to compensate for the loss of insurance premiums). Even though the after-tax income will be lower to employees, aggregate labor supply could either rise or fall. Further empirical work would be necessary to obtain quantitative estimates of these effects.

Allowing health insurance premiums to remain tax-exempt in effect reduces the price of insurance (compared with the price of any item bought by the employee with after-tax dollars). The price of the insurance policy is reduced by the amount of taxes saved when insurance, rather than wages, is taken as payment for work. Reducing or eliminating this favored tax treatment raises the price of insurance and thereby reduces the amount of insurance people wish to keep.

Empirical studies of the demand for health insurance (Phelps, 1973) define the price of insurance as any added premium above the expected insurance benefits. By this approach, the insurance has zero price if expected benefits just equal the premium. Phelps (1973) relies upon the substantial differences in the loading fee for employees in work-group insurance plans with differing numbers of employees. The loading fees range from 5 to 10 percent of expected benefits in larger groups to over 50 percent in smaller groups. These differences are even larger than changes in the price of insurance arising from changes in tax treatment of health insurance premiums.

From these data, one can predict that making half of employer-paid premiums taxable to employees would cause desired premiums to fall by up to 50 percent.\footnote{Derivation of this estimate is presented in Appendix B. Feldstein and Friedman, 1977, draw even stronger conclusions about the effects of tax law on coinsurance rates. Several other studies of demand for insurance have been published, but they cannot be}
as the effects of insurance on use of medical care; there is nothing of comparable precision to the HIS results regarding actual choices of health insurance. Subsequent research at Rand will improve upon existing estimates as additional data on health insurance premiums become available for the sample enrolled in the HIS.

Use of the results in Phelps (1973) also requires extrapolation beyond the observed range of data, and the method of extrapolation introduces further uncertainties. Although this prediction is not exact, it provides a reasonably useful description of the insurance change forthcoming when the tax treatment of health insurance premiums is altered.

Wages and other fringes should rise to offset the fall in health insurance premiums so that the total compensation package paid by employers will remain unchanged. This conclusion derives from the assumption that the incidence of the tax change is fully on the employee. Past studies have shown that taxes on compensation—whether levied on the employee or employer—fall almost entirely on the employee.6

How this reduction in insurance costs and coverages will be achieved is an area of uncertainty, deserving of more empirical research. There are two generic possibilities. First, coverage might be reduced uniformly across all health care areas—ambulatory care, hospitalization, dental care, etc. To effect a 50 percent reduction in insurance premiums would take a 25 percent increase in copayments across the board.7 Alternatively, increasing the deductible on a major medical policy from $100 to $500 to $750 would cause premiums to fall by the same amount (Newhouse et al., 1978).

In fact, people would probably not reduce their insurance coverage uniformly but would follow some simple principles in making selective reductions. Just as insurance was historically first chosen to cover the highest risk services (e.g., hospitalization) and only later extended to cover lower risk services (e.g., physician office visits, dental care, psychiatric visits), retrenchment in coverage would probably follow similar patterns. Dental care, ambulatory care, drugs, and similar services would, probably become uncovered or, at least, covered only with very large yearly deductibles of perhaps $500 or

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used to forecast the effects of the type of tax change being considered here. The difficulties with these other studies are discussed in more detail in Appendix B.

6Appendix B presents two alternative extrapolations to exhibit the sensitivity of results to choices of techniques.

7See Brittain, 1971, and Feldstein, 1972, for analyses of the incidence of the Social Security tax.

7This results from combining the reductions in utilization shown in Table 1 with the effect of shifting 25 percent of the payment to individuals from insurers.
more, rather than currently typical deductibles of $150 to $200. In terms of effects on aggregate medical care market demand, most purchases of these services would be uninsured. Hospital insurance coverage would probably be least changed, because the financial risks are greatest for hospitalization. Insurance policies would probably continue to require copayments, at least for nonhospital services, and require that a higher percent of income be spent before "catastrophic illness" clauses, which cover 100 percent of all costs, applied.

The above discussion provides some reasonable rules of thumb. Nevertheless, the tradeoff between additional salary and insurance and the ultimate nature of the insurance package are the products of complex decision processes. We need better empirical information about how changes in the tax subsidy will influence these decisions. Current and future Rand research projects examine these issues.

To illustrate the effects of cost sharing on health care expenditures, we consider a simple change in insurance—a 25 percentage point, across-the-board increase in copayments. For example, a full coverage plan would become a 25 percent copayment plan; a 25 percent copayment plan would become a 50 percent copayment plan. (As will be shown below, the qualitative conclusions that follow are not broadly sensitive to this choice. However, actual magnitudes could differ depending on insurance choices made by employees.) The HIS results suggest that reduced utilization would cause a $12 to $13 billion decline in aggregate health care expenditures (Table 5), almost a 5 percent decline in the national health care bill. The resulting drop in demand may lead to lower medical care prices as providers compete for the remaining patient visits, hospital admissions, etc. Consequently, cost sharing offers great potential as a cost control device in employer-paid insurance programs.

**DISTRIBUTIONAL CONSEQUENCES**

If utilization and health care expenditures decreased substantially under the hypothetical proposal, who would benefit and who would lose? Federal and state governments would definitely benefit. Health care providers would definitely lose. Employees might or might not be

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*The numbers in Table 5 were derived by reducing demand in each health care sector only for those insured through employer groups (col. 1), in accordance with demand differences found in the HIS under different copayment plans (col. 3). Appendix A provides full detail on expenditures for various types of health care from various sources of financing. The HIS results indicate that the proportional utilization changes from increased coinsurance are approximately the same no matter what level of insurance any individual now has.*
Table 5

**Effects of Taxing 50 Percent of Employer-Paid Premiums**

<table>
<thead>
<tr>
<th>Expenditure Category</th>
<th>Amount Spent through Group Insurance ($ billions)</th>
<th>Employer Insured Expenditure as % of U.S. Total</th>
<th>HIS Effect of Copayment (% decrease)</th>
<th>Decrease in Outlay ($ billions) (1)x(3)</th>
<th>% Change in Category</th>
<th>U.S. Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospitals</td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
<td></td>
</tr>
<tr>
<td>Physicians</td>
<td>38</td>
<td>30</td>
<td>20</td>
<td>7.6</td>
<td>6.0</td>
<td></td>
</tr>
<tr>
<td>Dental</td>
<td>19</td>
<td>37</td>
<td>20</td>
<td>3.8</td>
<td>6.5</td>
<td></td>
</tr>
<tr>
<td>Drugs</td>
<td>4</td>
<td>27</td>
<td>20-30</td>
<td>0.8-1.2</td>
<td>4.0-6.0</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>62</td>
<td>25</td>
<td>—</td>
<td>12.4-13.0</td>
<td>4.6-4.8</td>
<td></td>
</tr>
</tbody>
</table>

*Source: Carroll and Arnett, 1981; Fisher, 1980; and Newhouse et al., 1982.*
worse off. And health insurers would face large reductions in their volume of business. Other business would be unaffected, because neither their total labor costs nor their taxes would be altered, once offsetting adjustments in wages are made in response to the change in insurance. (Recall that the tax burden should—as an empirical matter—fall entirely on the employee.)

The federal government would benefit from additional tax revenues, unless offsetting changes in the tax law occurred. First, it could immediately obtain the revenues from taxing 50 percent of employer-paid premiums. In the example, employee response would cut these premiums by up to half ($30 billion). As a result, $15 billion would be added to employees’ taxable income. Second, in the longer run, employers would increase salaries and other fringes to compensate for the reduced insurance coverage. Research suggests that the employer’s total wage and fringe package would remain constant so that other elements of compensation would rise by approximately the amount insurance premiums fell. This would add another $30 billion to employees’ taxable income. Because the average marginal tax rate is approximately 38 percent, the hypothetical proposal raises roughly $17 billion dollars for the U.S. Treasury from these two changes. Increased compensation means that state revenues would rise through income, excise, and sales tax collections, but state insurance premium tax collections would fall. However, states that copy federal tax laws would benefit from taxing part of the health insurance premiums.

The net effect on insured employees is uncertain and would vary from individual to individual, depending largely on utilization: Heavy consumers of health care services would be worse off; those who consumed less would be better off. Increased cost sharing would increase employees’ out-of-pocket medical expenditures, but if cost sharing caused them to use less, these costs would decrease. At the same time, employees would get increased salaries and other fringe benefits. However, lower utilization might adversely affect the health status of employees and their dependents. This question is currently being analyzed as part of the HIS. It is difficult to make further generalizations, but employees (on average) would not necessarily suffer from cost sharing.

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8Government revenue would be reduced to the extent that nontaxable fringe benefits are increased to compensate for reduced health insurance premiums.
9See Ginsberg (1982a); this includes Social Security contributions but not state taxes.
10These estimates presume no "basic" health insurance policy or premium level remains tax-exempt. Such a policy choice would obviously reduce new tax receipts, possibly substantially. Analysis of such plans is straightforward, but beyond the scope of this report (see Mitchell and Phelps, 1976, for a similar problem).
Health care providers' revenues would fall—sharply, in some cases—as utilization declined (Table 5). Hospitals and physicians would be substantially affected, suffering losses of $7.6 billion. Physicians would face a decline in utilization of $3.8 billion. For hospitals, the HIS results show this decline to come entirely in the form of reduced numbers of admissions to the hospital. Providers of dental care and pharmaceuticals would suffer smaller, but nontrivial, drops in demand—both absolutely and proportionately.

The effects depicted in Table 5 assume that the tax change induces an even across-the-board increase in cost sharing for all services. As suggested above, a more likely response would (1) eliminate coverage on many peripheral services (dental, optical, etc.); (2) increase ambulatory cost sharing by a sizable amount; and (3) make small changes, if any, in hospitalization coverage. In this case, obviously, drugs and dental service providers would be more seriously affected and hospitals less seriously affected.

The HIS results suggest that even if cost sharing in hospitalization coverage were unchanged, imposing a small increase in ambulatory cost sharing would substantially reduce hospital utilization. In the HIS, a $150 deductible for ambulatory care reduced hospital use by 12 percent, which translates into reduced expenses of $4.6 billion, a 3.7 percent reduction in total U.S. hospital expenditures, if applied to those currently insured through employer groups. Thus, hospital use declines generally even if consumers choose an insurance mix to achieve their desired premium reductions that is different from the one we assumed earlier.

Hospitals facing decreased demand could somewhat reduce the financial damage by raising their prices to reflect higher average costs. Even in a normal market, prices will adjust to some extent to cover average fixed costs of firms, but the ability to do this in the hospital sector is enhanced by the mechanisms of payment. Third party insurers are often committed to paying on the basis of average costs, including most private insurance plans and government programs such as Medicare. At least in the short run, hospitals should be able to shift their fixed costs to third party and direct payors, while having to deal with the reductions in variable costs immediately.

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12 They might fall further if the resulting excess capacity increased price competition. However, that effect is difficult to estimate at this time and is not included in Table 5 or the following discussion.
13 Some researchers have concluded that physicians can induce demand for their services so as to achieve a "target income" (Barer, Stoddart, and Evans, 1979). But recent studies of physician market behavior show that normal market forces work in physician markets as well as elsewhere, so the opportunities for demand-inducement are negligible. For a more complete discussion of this issue, see Newhouse, 1981.
14 See Table 1.
Estimates of the fraction of total hospital costs that are fixed vary considerably (Lipscomb, Raskin, and Eichenholtz, 1978), ranging from 20 percent to over 90 percent. The most recent studies, using more sophisticated techniques, have estimated that for unanticipated changes in hospital use, only 35 percent of costs are variable, with 65 percent fixed (Friedman and Pauly, 1981). For the change in tax policy we consider, hospital use falls by $7.6 billion (at original prices charged by hospitals). At a minimum, hospitals would be unable to shift the 35 percent variable cost component—$2.7 billion—to third party payors and would attempt to shift the remaining 65 percent—$4.9 billion in total—to insurance plans and government programs (see Fig. 2). Of this amount, $2.4 billion would be shifted to government plans and $2.5 to private payors. The drop in utilization could mean that hospitals lose as little as $2.7 billion in revenues, after they increase their prices to cover fixed costs. However, government reimbursement restrictions could well block or limit the ability of hospitals to recover revenue lost from government programs. If so, private payors or the hospitals might bear a greater burden. Without these restrictions, the net government revenues from these tax changes would be less than estimated previously.

As noted, increased per-day costs in hospitals would also cause the private insurance costs to rise in this example by some $2.5 billion, presumably offset by $2.5 billion reduction in taxable wages. Under the example, half of these premium increases ($1.25 billion) would be tax-exempt, causing net tax receipts to fall by some $0.5 billion. Government would, directly and indirectly, pay for well over half of the increased per-hospital-day costs shifted from providers to buyers of hospital care.

Finally, as discussed above, health insurers would experience a dramatic fall in premiums (up to $30 billion), which would also affect the claims and data processing firms that serve the health insurance industry.
Fig. 2—Possible cost-shifting by hospitals after utilization reductions—private plan cost sharing
V. COST SHARING IN PUBLIC PROGRAMS

COST SHARING POLICIES FOR PUBLIC INSURANCE PROGRAMS

Medicaid is the second largest public program, accounting for $31 billion or 29 percent of government health expenditures (Table 6). It generally imposes no cost sharing. Current federal proposals seek to establish a precedent by imposing small copayments—for example, $1 per ambulatory visit and $4 per nonemergency visit to hospital emergency rooms.¹ States are also encouraging cost sharing in Medicaid. Since January 1982, 13 states have initiated small copayments for some medical services—drugs, dental care, hearing aids, etc. Ten states have introduced hospital cost sharing by limiting the number of inpatient days that will be reimbursed in any year.² Once cost sharing is established in principle, larger copayments or deductibles might follow.

Table 6

<table>
<thead>
<tr>
<th>Health Care Expenditures, FY 1982, by Program, All Levels of Government</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>Total government expenditure</td>
</tr>
<tr>
<td>Medicare</td>
</tr>
<tr>
<td>Medicaid</td>
</tr>
<tr>
<td>Other</td>
</tr>
</tbody>
</table>


An evaluation based on the HIS results indicates that imposing cost sharing in the Medicaid program would have a small effect on national aggregate health care expenditures but could yield sizable program savings. The small aggregate effects of Medicaid cost sharing

¹Brazda, 1982.
come from several sources. First, although Medicaid expenditures account for 29 percent of the government's total health care bill, they amount to only 11 percent of the national bill. Second, nursing home care accounts for nearly 40 percent of total Medicaid expenditures (see Table 7) but is traditionally exempt from cost sharing discussions. Third, children are overrepresented in the remaining Medicaid population. According to the HIS results, the hospitalization rates of children are not sensitive to cost sharing (see Table 3). Nevertheless, although the expenditure reductions might not be great, Medicaid cost sharing might have noticeable distributional effects.

EFFECTS OF MEDICAID COST SHARING

Consider the potential expenditure reductions from imposing a 25 percent copayment (with a maximum of 5 percent of income) on the noninstitutionalized Medicaid population. Cost sharing would affect approximately 85 percent of that population, who account for half of Medicaid's expenditures. This group of Medicaid recipients are noninstitutionalized elderly people or families receiving AFDC welfare payments. The estimated health expenditure reduction for this cost sharing plan is $2.5 to $2.7 billion, equivalent to a 2.5 percent reduction in 1982 government expenditures and just under 1 percent of national expenditures (see Table 7). The Medicaid program would reduce its budget costs by nearly a quarter (see below) through reduced utilization and a shift in payment liability from Medicaid to recipients. From a national aggregate perspective, cost sharing in Medicaid would not yield major cost reductions through reduced utilization. That conclusion seems especially compelling when we consider that a 25 percent copayment is much higher than anything so far proposed.

DISTRIBUTIONAL CONSEQUENCES

Although a copayment that size would not substantially reduce national health care expenditures, Medicaid cost sharing might have important implications for some of the major actors in that system, principally Medicaid recipients and state and federal governments. The effects on most health care providers would be fairly small. With this reform, most Medicaid recipients who formerly had first dollar

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3 Excluded are nursing home patients and the permanently disabled, who account for 15 percent of the Medicaid population and 50 percent of Medicaid expenditure.
### Table 7

**Effects of a 25 Percent Medicaid Copayment**

<table>
<thead>
<tr>
<th>Expenditure Category</th>
<th>1982 Medicaid Outlay ($ billions)</th>
<th>1982 Medicaid Outlays as % of U.S. Total Category Outlays</th>
<th>% Medicaid Population Affected</th>
<th>HIS Effect of Copayment (% decrease)</th>
<th>Decrease Medicaid Utilization ($ billions) (1)x(3)x(4)</th>
<th>% Change in U.S. Total Outlays</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospitals</td>
<td>12</td>
<td>10</td>
<td>67</td>
<td>20a</td>
<td>1.600</td>
<td>1.3</td>
</tr>
<tr>
<td>Physicians</td>
<td>3</td>
<td>5</td>
<td>70</td>
<td>20</td>
<td>0.420</td>
<td>0.7</td>
</tr>
<tr>
<td>Dental</td>
<td>1</td>
<td>5</td>
<td>100</td>
<td>20.30</td>
<td>0.2-0.3</td>
<td>1.0-1.5</td>
</tr>
<tr>
<td>Drugs</td>
<td>2</td>
<td>8</td>
<td>70</td>
<td>20-30</td>
<td>0.3-0.4</td>
<td>1.1-1.7</td>
</tr>
<tr>
<td>Nursing homes</td>
<td>12</td>
<td>46</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>31</strong></td>
<td><strong>11</strong></td>
<td>--</td>
<td><strong>2.5-2.7</strong></td>
<td><strong>1.0</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Sources:** Outlays projected from 1979 data in *Health and Human Services, 1982*; data for col. (2) and col. (6) derived from Fisher, 1980; and Carroll and Annett, 1981. Demand changes from Table 3; data for col. (4) assumes no copayment for Medicaid users in Intermediate Care Facilities (ICFs) and for 1/4 of all other adults. Data for numbers of enrollees by category in *Health and Human Services, 1982, Table 4,12.*

*Children assumed to have zero response.*
insurance coverage would now pay 25 percent of their health care bills (up to a 5 percent income limit). If the income limits were never reached, Medicaid recipients would pay a maximum of $7.1 billion in copayments. However, some recipients would reach their income limits and receive 100 percent coverage thereafter. The HIS results indicate that this type of cost sharing arrangement would cause Medicaid recipients to pay, on average, about 15 percent of their health care bills or $4.3 billion, amounting to just under $260 per affected recipient.4

Under this arrangement, federal and state governments might realize substantial savings in program costs from two sources. As just noted, utilization cuts would decrease expenditures by about $2.6 billion. In addition, income-related 25 percent copayments would shift $4.3 billion in program costs to Medicaid recipients. Thus, state and federal governments will reduce program costs by $6.9 billion—22 percent. If savings were distributed proportionately to current shares of Medicaid expenditures, the federal government would save $3.8 billion and the states (and local governments) $3.1 billion. State and local savings would concentrate in a few large jurisdictions. New York alone would save $600 million, California $440 million, Michigan and Illinois $180 million each, and Pennsylvania $160 million. These five states account for half the Medicaid costs (and cost reductions).

Revenues of health care providers would fall. However, in the context of a national market, the declines would be small—less than 2 percent for every major health care category (see Table 7). Hospitals' revenues would fall by $1.6 billion, physicians' by $420 million, dentists' and dental suppliers' by $200 to $300 million, and pharmaceuticals' by $280 to $420 million. If, as we assume, nursing home patients would be exempt from cost sharing, nursing home operators would be unaffected.

The $1.6 billion drop shown for hospitals assumes that they do not make up any of this shortfall by shifting portions of their costs to other payors. As discussed in the previous section, because revenue reduction comes from decreased utilization, a hospital might shift all or part of overhead (fixed) costs to privately insured, self-insured, or government-insured patients. If so, hospitals would experience a reduction of as little as $500 million or 0.4 percent of revenue. As a result both the revenue loss to hospitals and the savings to government would be much smaller than at first indicated. Government savings would fall further as income tax reductions would cause the government to pay nearly half the costs that hospitals shifted to employer health insurance plans.

4The HIS interim sample size used to calculate this number is quite small, and the precision of the final results may suggest a different estimate of this ratio.
CURRENT MEDICAID COST SHARING PROPOSALS

As noted above, recent proposals suggest much smaller copayments than 25 percent. Typical of these is a Congressional plan proposing a $1-per-visit copayment for ambulatory care and $4 for nonemergency visits to emergency rooms (Brazda, 1982).

Under Medicaid, per-visit payments for ambulatory care average about $20. A $1 copayment represents about 5 percent of the physician’s bill. Consequently, the effect on demand would be about one-fifth of that for the 25 percent plan. Given the HIS results, any reductions in ambulatory care would also cause declines in hospitalizations, but in nowhere near the magnitude (a 2 percent decline) precipitated by the 25 percent plan.
VI. CONCLUSIONS AND IMPLICATIONS

COST SHARING IN EMPLOYER FINANCED INSURANCE PLANS

Cost sharing in employer financed plans may yield sizable reductions in aggregate health care expenditures. Precisely how great depends on the form of policy change and the consequent effects on insurance coverage and utilization. With the best estimates available about these effects together with the HIS interim results, under a typical proposal for taxing employees on half of employer-paid health insurance premiums, health care expenditures would fall by $12 to $13 billion. This results in almost a 5 percent decline in the national health care bill.

The distributional effects could be substantial. If enacted today this change in tax policy could:

- Reduce the premiums paid to health insurers by up to $30 billion,
- Reduce hospital and physician use by $7.6 and $3.8 billion, respectively, and
- Raise nearly $17 billion for the U.S. Treasury.

Hospitals could recover a portion of this revenue loss attributable to overhead costs by raising prices charged the remaining patients, the government, and insurers. If so, the loss to hospitals might be reduced as little as $2.3 billion and the gain by the U.S. Treasury would fall marginally.

The effect on employees would depend in part on their subsequent use of health care services. Increased cost sharing would increase employees' out-of-pocket medical expenditures. However, cost sharing is known to reduce utilization, so those out-of-pocket expenditures would be less than otherwise. In addition, standard analysis of labor markets says that employers will increase wage payments to offset reductions in premiums. Perhaps the most important effect is one we do not yet understand well—of increased cost sharing on health status. If the reductions in medical use following increased cost sharing do indeed affect health status adversely, it may be desirable to reevaluate the decision to reduce health insurance coverage. The effects on health status are currently under investigation and should be available within the next year.
MEDICAID COST SHARING

Although it may produce noticeable program savings, even substantial Medicaid cost sharing would make only a small dent in total national health costs. It could, however, have some important distributional consequences:

- There might be considerable program savings to the government, and
- Medicaid recipients would pay part of this savings.

Some health care providers would face reduced demand, but the magnitudes appear small when compared with total utilization. In addition, hospitals could shift part of their losses to other parties in the short run.

WHICH POLICY FOR COST CONTROL?

Cost control measures currently under consideration hold the promise of reducing medical costs, but none offers a "magic bullet." A cost sharing plan within Medicaid that imposes much larger cost sharing than current proposals has considerable potential for reducing Medicaid program costs; but because Medicaid costs are only a tenth of total health care expenditures, the effects on aggregate expenditure are small. The current proposals for cost sharing in Medicaid consider only much smaller cost sharing, and these have little potential for reducing program costs or for an aggregate expenditure. This points out a fundamental policy dilemma that must be confronted if cost sharing is to become an effective tool in cost control: The political process may be unwilling to impose the redistribution (for example) against Medicaid recipients that would be necessary for substantial cost savings.

Consideration of ways to increase cost sharing in private insurance confronts similar issues. A tax policy offering great potential for increased cost sharing (and resulting in considerable reduction in health care expenditure) obviously imposes substantial costs on many parties—health providers who lose business and health insurers whose premium volume falls markedly. Consumers would benefit from higher wages, and there may be reductions in medical prices (as competition increases with increased cost sharing—an effect we have not considered in this report). However, consumers will face higher copayments. Effects on consumers' health status are as yet unknown but will have considerable effect on the desirability of such changes in public policy.
If the consequences of cost sharing prove unacceptable politically (e.g., by harming too many groups with great political strength), then ultimate reductions in medical costs will be smaller, possibly negligible. This could become important if effects of reduced medical care on health status prove unacceptable. If so, public policy may eventually turn to regulatory options to control expenditure, even with the current emphasis on cost sharing and pro-competitive policy options.
Appendix A

DETAIL ON SOURCES OF PAYMENT FOR VARIOUS HEALTH SERVICES

Table A.1

ESTIMATED COMPOSITION OF PERSONAL HEALTH EXPENDITURES, 1982
(in billions of $)

<table>
<thead>
<tr>
<th></th>
<th>Insurance</th>
<th>Private&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Other</th>
<th>Public</th>
<th>Medicare&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Medicaid&lt;sup&gt;c&lt;/sup&gt;</th>
<th>Other&lt;sup&gt;d&lt;/sup&gt;</th>
<th>Total&lt;sup&gt;e&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital</td>
<td>46</td>
<td>10</td>
<td>2</td>
<td>35</td>
<td>12</td>
<td>2</td>
<td>126</td>
<td></td>
</tr>
<tr>
<td>(Short term</td>
<td>(44)</td>
<td>(9)</td>
<td>(2)</td>
<td>(35)</td>
<td>(11)</td>
<td>(6)</td>
<td>(107)</td>
<td></td>
</tr>
<tr>
<td>general)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Psychiatric</td>
<td>(2)</td>
<td>(1)</td>
<td>(—)</td>
<td>(—)</td>
<td>(1)</td>
<td>(15)</td>
<td>(19)</td>
<td></td>
</tr>
<tr>
<td>Federal)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physicians</td>
<td>23</td>
<td>20</td>
<td>—</td>
<td>11</td>
<td>3</td>
<td>1</td>
<td>58</td>
<td></td>
</tr>
<tr>
<td>Dental&lt;sup&gt;f&lt;/sup&gt;</td>
<td>4</td>
<td>15</td>
<td>—</td>
<td>—</td>
<td>1</td>
<td>1</td>
<td>19</td>
<td></td>
</tr>
<tr>
<td>Drug&lt;sup&gt;f&lt;/sup&gt;</td>
<td>2</td>
<td>16</td>
<td>—</td>
<td>1</td>
<td>2</td>
<td>—</td>
<td>24</td>
<td></td>
</tr>
<tr>
<td>Nursing home</td>
<td>—</td>
<td>12</td>
<td>—</td>
<td>—</td>
<td>12</td>
<td>2</td>
<td>26</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>11</td>
<td>—</td>
<td>1</td>
<td>1</td>
<td>6</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>76</td>
<td>85</td>
<td>2</td>
<td>48</td>
<td>31</td>
<td>30</td>
<td>273</td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup>Distribution of private payments among types of expenditure are taken from Fisher, 1980, Table 9. These proportions of expense are applied to the 1982 total expense.

<sup>b</sup>Medicare expenditure data are from Department of Health and Human Services, April 1982, Table 75. The source data are for 1980. These have been increased at an annual compound growth rate of 16 percent, which is the growth rate in program costs in Medicare between 1980 and 1981. This rate exceeds the growth rate in total U.S. expenditure because of increases in numbers of enrollees.

<sup>c</sup>Medicaid expenditure data are from Department of Health and Human Services, April 1982, Table 76. Source data are for 1980, inflated at 12 percent annual growth rate (the program's cost growth rate for 1981).

<sup>d</sup>"Other Government" expenses, by category, are derived as a residual of total expense less all other known expenses.

<sup>e</sup>Total expenditures are from Health Care Financing Trends, 1982. 1981 totals have been increased by 12 percent to reflect 1982 levels.

<sup>f</sup>Health insurance benefit payments for dental and drug care are taken from Health Insurance Institute, 1981.
Appendix B

THE DEMAND FOR INSURANCE

Demand for insurance, like demand for other goods and services, falls as its price rises. The price of insurance is usually defined as the "loading fee," the excess of premiums above expected benefits. This can be described either as a dollar amount or, more typically, as a percent of the expected benefits. If expected benefits are $B$ and the premium is $P$, the loading ratio $r$ is defined by $P = (1 + r)B$. If $r = 0$, the price of insurance is said to be zero; if $r$ exceeds zero (which it must, to account for costs and normal profits of insurers), then the price is positive.

Health insurance is further characterized by a subsidy through the tax system, unlike most other goods and services. If a premium $P$ can be purchased with tax-exempt dollars, then the individual must give up only $(1 - t)P$ dollars of consumption of other goods and services, where $t$ is his marginal tax rate. The after-tax cost of health insurance to the individual is $P = (1 - t)/(1 + r)B$, and the after-tax price of insurance is $r^* = r(1 - t) - t$, rather than $r$.\(^1\) Figure B.1 portrays the consequence of the tax subsidy. If the insurance companies operate with a loading fee (the price of insurance) of $r$, and if an individual has a marginal tax rate of $t$, his demand for insurance measured in dollars of premiums will increase from premium level 1 ($P_1$) without the subsidy to the larger premium $P_2$ if the insurance premiums are not construed as taxable income.

The demand curve for insurance is portrayed here as not "exploding" even at negative prices, because this matches observed behavior. In concept, nothing prohibits demand curves from being well-defined at negative prices (subsidies for consuming more insurance); and this must be the case with current health insurance coverage, because premiums are finite and the after-tax price is negative. The reason is that each increase in insurance coverage induces the consumer to buy more health care, which produces fewer incremental gains to the consumer in well-being. Further, with insurance purchased through group plans, differences in desired insurance among the members ultimately limit the "best" choice of insurance for that group (Goldstein and Pauly, 1976).

\(^{1}\)To see this, note that $(1 - t)(1 + r) = 1 + r(1 - t) - t$. Therefore, the price of insurance is $r(1 - t) - t$. 

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For private health insurance plans, the loading rate $r$ varies from .1 or smaller (for very large group plans) to over .5 for small group plans and still higher for individual policies. On average over the past four years, the loading rate for all policies has been .17 (Health Insurance Institute, 1981, data from Tables 3.1 and 2.1).

The actual marginal tax rate for individuals has increased steadily through time, because of bracket creep and the increase in the base income level and the tax rate for the payroll tax (Social Security wage tax). The current rate—7.65 percent for individuals and 7.65 percent for employers—adds 15.3 percent to the marginal tax rate for any person making less than $35,700 annually in 1983. (This presumes, as past studies by Brittain, Feldstein, and others show, that the employer’s share of the Social Security tax falls on the employee in equilibrium.) Recent studies by the Congressional Budget Office estimate the average of all marginal tax rates for U.S. taxpayers at 38 percent (Ginsberg, 1982a).

With these data, the average individual would face a price of insur-
ance of −.27, using t = .38 and r = .17. That is, the after-tax insurance premium cost less than three quarters of the expected benefits. The proposed tax change considered in this report would eliminate half of that subsidy by making half of the premium taxable. This raises the price of insurance to −.05, as the relevant marginal tax rate falls to .19 (half of .38).

Forecasting the resulting change in insurance premiums requires use of estimates that do not contain observations in the range of the current (after-tax) price of health insurance. The best available evidence is a study using household survey data from a random sample of the 1963 U.S. population (Phelps, 1973). Much of the insurance was purchased through work groups (the remainder as individual policies). The household survey gathered data on the size of work group, from which the loading fee on the insurance could be imputed. The method—documented in Phelps, 1973—depends upon systematic variation in the premiums for a given insurance policy common in the industry. Group insurance premiums are offered at a base price (representing the loading fees for smallest groups), and then discounted for larger groups, on the basis of premium dollars. Knowledge of the average insurance premium and the schedule of discounts allows calculation of how the loading fee varies with group size. The statistical studies in Phelps, 1973, show how premiums vary with group size. These data can then be translated to answer the (equivalent) question of how premiums vary with the loading fee. Although Phelps does not introduce variations in tax rates per se, the estimates do control for income of the households in the survey. Further, unless tax rates vary with the size of employment group, no bias should be expected in the estimated relationship between group size (e.g., loading fees) and demand for insurance.

In this sample, the size of insurance groups varied sufficiently to induce changes in the loading fee ranging from .08 (for the largest groups) to over .5 for smaller groups. The average marginal tax rate in 1963, including Social Security taxes of 3.615 percent on income under $4800, was .2 to .21 (computed from U.S. Treasury, Statistics of Income, 1963, and Statistical Abstract, 1981, Table 533). Thus, the

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2Other studies have estimated demand for insurance, but none can be applied directly to the question we analyze here. One time-series study in Phelps, 1973, did not use information on tax rates, which changed markedly through the period in the study. Thus, the estimated effects of loading fee on the demand for insurance are almost certainly biased. In another study using cross-section data, Goldstein and Pauly (1976) estimated an elasticity of premiums with respect to the loading fee approximately three times the one used here, but they did not publish enough information to permit the extrapolation this calculation needs, and the insurance premium information they used contained data on group life, health, and accident insurance, rather than just on health insurance.
after-tax price of insurance was \(-.14\) (for the largest group) to \(+.30\) or more for the smaller groups.

We need to extrapolate those estimates into a range where the loading fee (after tax) is \(-.27\), the current average level for the United States. Naturally, how one does the extrapolation affects the results, and there is no obviously superior set of assumptions to make. We consider two approaches to demonstrate the effects of various extrapolation techniques on the conclusions.

The first extrapolation assumes that the curvature in demand for insurance estimated in the original study is correct. Various points from that demand curve can be plotted, translating the work-group size into loading fees as described previously (see Phelps, 1973, Table D-3), and then a curve fitted and extrapolated. The entire curve must be shifted in a parallel fashion to match current levels of premiums—\$62 billion, at a net price including effects of taxes of \(-.27\), shown as Point X in Fig. B.2. Thus, the extrapolated curve can be forced through that point, while the curvature estimated originally is maintained.\(^3\)

The hypothetical tax policy would reduce the subsidy to insurance by half, raising the after-tax price from \(-.27\) to \(-.05\). In Fig. B.2, this amounts to a 56 percent reduction in the level of insurance premiums, from Point X (\$62 billion) to Point Y (\$28 billion).

An alternative, more cautious extrapolation would fit a straight line through the points from the demand curve estimated in Phelps, 1973, and similarly relocate that straight line (with a parallel shift to account for changes in income, prices, and other variables) through the observed 1982 data (Point X in Fig. B.3). (The line’s slope is \(-100.3\), with a standard error of 8.5 estimated from data in Phelps, 1973, Table D-3.) The reduction in premiums along this assumed extrapolation to Point Z (\$40 billion) is 35 percent. Although this extrapolation ignores a curvature that was estimated in the original study, it nevertheless forecasts a large reduction in health insurance premiums.

The need to extrapolate lends considerable uncertainty to the results. For purposes of discussion in the body of the report, we have stated that premiums could fall by “up to half.” In calculating subsequent effects on health care markets themselves, we have used a reduction of a round 50 percent in premiums for purposes of analysis, a value between the estimates obtained by two different extrapolation methods.

\(^3\)The ability to shift the demand curve’s location without introducing bias depends on knowledge from the original study that the slope and shape of the demand curve did not vary with anything else affecting demand for insurance (such as medical prices, income, etc.).
Subsequent work is planned that will remedy the need for this extrapolation in two ways. First, data were collected from the HIS on premiums held by persons at the time of enrollment into the study. Combining these data with information on individuals' incomes and the size of group through which the insurance was obtained, we can replicate the Phelps (1973) studies directly taking into account the effects of the tax subsidy at current tax rates. (A similar study could be undertaken with data collected in 1979 by the National Center for Health Services Research.) Second, participants in the HIS have been given questionnaires about their willingness to purchase supplemental insurance within the context of the HIS. The questions were designed to elicit information over a very broad range of insurance prices. These data, also currently being analyzed, will provide a separate estimate of the effects of price on insurance demand.
Fig. B.3—Prediction of effect of tax policy change—linear extrapolation

X = data points from Phelps, 1973, adjusted to 1982 levels

(Regression line estimated from
Table D-3, Phelps, 1973
slope = -100.3
std. error = 8.5)

Point x
(actual 1982)

Premiums
($ billions) 1952

After-tax
loading fee

0.1
0.05
0
-0.05
-0.1
-0.15
-0.2
-0.25
10
20
30
40
50
60
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