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"Medicaid Policy and the Substitution of Outpatient for Physician Care"

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Medicaid Policy and the Substitution of Outpatient for Physician Care

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Medicaid Policy and the Substitution of Outpatient for Physician Care

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ABSTRACT

This article explores the effects of reimbursement and utilization control policies on utilization patterns and spending for physician and outpatient services under state Medicaid programs. The empirical work shows a negative relationship between the level of Medicaid physician fees, relative to Medicare and private fees, and numbers of outpatient recipients, suggesting that outpatient care substitutes for physician care in states with low fee levels. In addition, it shows a positive relationship between Medicaid physician fees and outpatient spending per recipient, suggesting that in low fee states outpatient departments are providing some types of care that could be provided in a physician's office. Finally, the analysis demonstrates that reimbursement and utilization control policies have significant impacts in the expected directions on aggregate Medicaid spending for physician and outpatient services.

INTRODUCTION

In 1984 $2.5 billion was spent on physician services in state Medicaid programs, which accounted for 5.8 percent of total U.S. Medicaid spending. This made physician care the third largest service category within Medicaid program nationally. Because they account for a large portion of total expenditures, and because federal regulations regarding payment methodologies for physicians have been less strict than those for nursing homes and hospitals, which are the two larger service categories, physician services have historically been a popular target among states for cost constraint. This constraint has typically manifested itself in the adoption of payment methodologies that produce rates well below rates in the private market or the Medicare program. A study by Holahan (1984) of Medicaid payment rates for physicians in 1979, for example, showed that most of the states with large Medicaid programs paid less than 80 percent of Medicare rates. Three of these states--Pennsylvania, New York, and New Jersey--paid less than half of Medicare prevailing charges.

Hospital outpatient care accounted for $1.6 billion, or 4.7 percent, of all 1984 Medicaid spending, making it the fifth largest service category overall (after nursing homes, inpatient hospitals, physicians, and prescription drugs). In contrast to physician care, cost containment for outpatient services typically has not been a major concern for the states in their Medicaid programs. Reimbursement methodologies for outpatient departments have historically been relatively generous, and utilization policies for outpatient care have in recent years been aimed

at least party at increasing outpatient use, in an effort to encourage the substitution of outpatient for hospital inpatient care.

The issue of substitutability among different types of services is an important one for the Medicaid program. A number of studies have shown that low Medicaid fees discourage physicians from participating in the Medicaid program (Hadley, 1979; Sloan and Steinwald, 1978; Sloan, Cromwell, and Mitchell, 1978; Held, Holahan and Carlson, 1983; Held and Holahan, 1985), but it is not clear what impact this type of cost constraint has on the Medicaid program as a whole. Some analysts contend that a likely response to low physician fees is for Medicaid eligibles to substitute hospital outpatient care for physician office visits where there is a lack of physician participation in the program. A study by Gold (1984) extending earlier work done by Davis and Russell (1972) showed that the use of outpatient services was indeed related to the availability and price of physician care, and a study by Lion and Altman (1982) suggested that there is, in fact, little difference between patients seen in hospital outpatient departments and those seen in private practice. Because outpatient reimbursement rates are less constrained than physician fees under Medicaid, substitution of outpatient for physician care could easily result in higher total program costs than would be the case if physician fees were set at levels that encouraged physician participation.

Although previous studies have examined the effects of Medicaid a payment rates on physician participation and factors affecting the demand for hospital outpatient services, to date little research has been done on the direct effects of reimbursement and utilization control policies on

overall Medicaid service use and expenditures. A notable exception was recent study by Long, Settle, and Stuart (1986) that looked at the effects of reimbursement policy on physician service utilization. This study used patient level data to examine the impact of stringency of Medicaid physician reimbursement on the probability of Medicaid eligibles seeing a physician, utilization rates for those who did see a physician, and the locations in which physicians were seen. The authors found that more stringent Medicaid reimbursement was not associated with the probability of seeing a physician or level of use among users, but was associated with the location of visits. Loss of access to office-based physician care resulted in Medicaid eligibles seeking and receiving physician services in hospital outpatient departments, hospital emergency rooms, and non-hospital based clinics.

This study explores similar utilization issues, as well as the effects of reimbursement and utilization control policies on Medicaid physician and outpatient spending by examining aggregate program data on recipients and expenditures for Medicaid physician and outpatient services by state for 1980 through 1984. The main questions it will attempt to answer are as follows:

1. What is the impact of Medicaid payment rates, relative to private payment rates, on physician utilization and spending?

2. What is the impact of basic Medicaid utilization controls on physician service utilization and spending?

3. What is the impact of reimbursement methodology and basic utilization control policies on outpatient service utilization and spending?

4. Is there evidence of a substitution effect in aggregate program data between physician and outpatient utilization and spending related to Medicaid physician reimbursement policy?

BACKGROUND

Physician Services

Spending for physician services under state Medicaid programs has not kept pace with inflation in recent years. As indicated in Table 1, total Medicaid physician spending nationally grew at an average rate of only 6.6% a year between 1979 and 1984, which represented a decline of 2.7% annually in constant dollars (i.e., adjusted for inflation in the price of physician services). The data also show very little growth in the number of recipients of physician services over this period, with recipients increasing by less than 1% a year on average. In addition, the inflation adjusted amount spent per recipient declined by more than 3%, indicating either that the intensity of services provided was falling or that real per service payments were declining at the same time.

[Table 1 goes about here]

As mentioned above, research has shown that physician participation in the Medicaid program is in large part a function of the levels at which Medicaid fees are set. It has also shown that higher rates of having claims returned for additional work, longer payment delays, and more time consuming claims forms discourage physicians from participating in the program (Sloan, Mitchell, and Cromwell, 1978). This research suggests that where fees are low or administrative costs are high access to care for Medicaid eligibles could be limited, resulting in eligibles being unable to obtain physician services and, consequently, lower levels of physician spending.

We have already seen that Medicaid spending for physician services has grown slowly in recent years, and has, in fact, declined in inflation adjusted dollars. The trend in Medicaid fees over the 1979 to 1984 time period is examined in Table 2, which shows the ratio of Medicaid to Medicare fees for each state based on fee indices developed for this study. Medicare fees used in this ratio were computed on the basis of actual fees in 1979 updated for later years by the applicable change in the Medicare Economic Index for physicians. Because Medicare fees in 1979 were a reasonable proxy for the private price of physician services, and the Medicare Economic Index tracks increases in physician office practice costs and incomes over time (Federal Register, 1985), these projected Medicare fees should also be a reasonable measure of private prices. Thus, this ratio indicates the attractiveness of Medicaid relative to private patients for physicians. A ratio of one or greater means that Medicaid fees are on a par with private fees, a ratio of less than one indicates that Medicaid fees are lower than fees in the private market.

[Table 2 goes about here]

As Table 2 illustrates, fee ratios have been declining in general over the entire 1979 to 1984 period. In 1979, for example, 13 states had ratios of 1.00 or above; by 1984 only 1 state (Wyoming) had a ratio that high. Moreover, while only 3 states had ratios of .50 or less in 1979 (New Jersey, Pennsylvania, and New York), by 1984 18 states had ratios that low. Only 3 states (Wyoming, Alabama, and the District of Columbia) increased their ratios over the period. Thus, these data suggest that declining Medicaid fees, relative to the private market, are a likely explanation for the decline in physician spending in recent years.

Examination of reimbursement and utilization control policies over the period (Table 3) suggests the primary mechanisms by which Medicaid physician spending has been constrained since 1980. Although other factors such as use of HMOs or case-management programs may have had some impact over this period, none were widespread enough to have been significant in more than isolated substate areas. Thus, their effects would not be discernable at the level of aggregation presented here.

On the reimbursement side data collected for this study show that there has been a shift over the past few years from Customary, Prevailing, and Reasonable (CPR) to fee schedule type approaches.

[Table 3 goes about here]

CPR systems are similar to the traditional Medicare physician reimbursement methodology. Under this approach, payments to physicians are based on the lowest of three different measures of "reasonable" cost. The first of these measures is the physician's actual charge, the second is the physician's median charge over a recent prior time period (the customary), and the third is the 75th percentile of all physicians' customary charges in an area or specialty (the prevailing). When adopting this type of system states have the option to specify their own percentile levels and groupings of physicians for setting the prevailing, as well as the frequency of their updates. Nonetheless, CPR systems are considered to be relatively generous because they provide a structure for regularly increasing payment rates based on increases in actual prices charged by physicians.

Fee schedules, on the other hand, set direct limits on payment rates for individual procedures at levels chosen by the state. Many states, for example, set Medicaid fees at the level paid under the Medicare program or by private insurance companies when their Medicaid programs were first instituted, with increases dependent upon the current political or fiscal situation (Holahan, 1984). Thus, under a fee schedule physician fees are less likely to be updated than they are under a CPR approach because the lack of a regular update mechanism makes it easier for state officials to avoid increasing the prices they pay physicians under Medicaid.

Utilization controls were also used by a number of states throughout the period. Many had such policies in place by 1980; several others implemented them between 1980 and 1984. Four states (Alabama, New

Hampshire, South Carolina, and Tennessee) added limits on physician office visits to their programs (one state, Missouri, removed them), three states added limits on physician inpatient hospital visits (Missouri, South Carolina, and Tennessee), and two states initiated limits on physician visits to patients in long-term care facilities (Alabama and New Hampshire).

[Table 4 goes about here]

It should be noted that although the presence of utilization controls is suggestive of efforts to curb unnecessary (as defined by the state) use of services and limit expenditure growth, it was not possible, given the difficulty of obtaining information for each state for each of 5 years, to determine how stringent these controls actually were. Clearly if a visit limit is set so high that it affects very few patients, it would have little impact on utilization or spending. Alternatively, such a limit could be set so that large numbers of patients and providers would be affected, severely constraining the use of services and, in turn, program expenditures. Thus, the stringency of a limit, more than its simple presence, is likely to determine the magnitude of its impact.

Nonetheless, it is possible that the establishment of limits might have some effect on utilization and spending independent of their stringency. For example, they may produce closer monitoring of program spending on the part of the state, which might create additional administrative costs for providers and deter them from accepting Medicaid

patients. In addition, they may reflect a more restrictive administrative posture with respect to Medicaid in general, which might have some indirect effects on the provision of services. In any case a limit is likely to represent several otherwise difficult to measure factors that may have an impact on program utilization and spending.

The dates that the physician reimbursement and utilization control policies discussed above were in effect over the period examined here are presented in Table 4.

Outpatient Services

Unlike expenditures for physician services, outpatient service expenditures did not decline in real terms between 1979 and 1984 (Table 5). The growth in the number of recipients of outpatient services was also greater than for physician services, averaging 2.2%, compared to .7%, annually between 1979 and 1984. In terms of real spending per recipient, rates of growth for outpatient services were again greater than for physician services, showing a positive value of .7%, compared to a decline of 3.3%, over this period. In sum, comparison of the data in Tables 1 and 5 indicates that in recent years outpatient service use and spending grew faster than physician service use and spending. This difference, although small, is consistent with the notion that there may have been some shifting in recent years from physician to outpatient services in the Medicaid program.

[Table 5 goes about here]

Data on outpatient reimbursement and utilization control policies are presented in Table 6. The primary change over the years examined was a shift from Medicare style reimbursement to alternative systems. Four states--Illinois, Massachusetts, Michigan, and Rhode Island--made such shifts after 1980. Under the traditional Medicare cost-based reimbursement approach, payment rates are based on the actual costs incurred by facilities, determined retrospectively. Because cost increases under this approach automatically translate into rate increases, such systems provide few incentives for efficiency. This drawback is the primary reason Medicare and most state Medicaid programs have discontinued the use of traditional retrospective cost-based systems in determining payment rates for inpatient hospital services.

[Table 6 goes about here]

Alternative methodologies are essentially an attempt to introduce incentives for efficiency into the system by lessening or severing the direct relationship between cost increases and rate increases. Under an alternative approach, rates might be set prospectively instead of retrospectively, or might contain ceilings on either the level of costs, the rate of growth in costs from year to year, or both. It is the use of these types of features that distinguish alternative from traditional retrospective cost-based systems.

As illustrated in Table 6, we considered systems based on a percent of charges to be a third separate approach used by states to pay outpatient departments. Because such systems are based on charges, rather than costs, it is not appropriate to classify them as Medicare alternatives. Whether a percent of charges approach is inherently more or less generous than the cost-based approach is unclear. At least one state set the percent of charges paid at 100%, which is indicative of a very generous reimbursement methodology. Such a system could be quite stringent, however, if the percent of charges paid is set at a low enough level.

With respect to utilization controls, there appears to have been little change in outpatient service coverage over the 1980 to 1984 period. Most of the states had limits on specific types of services (e.g., cosmetic surgery), and slightly less than half covered routine physicals in an outpatient setting for all five years. The effective dates for the outpatient reimbursement and utilization control policies are presented in Table 7.

[Table 7 goes about here]

MODEL SPECIFICATION

In specifying the model on which to base empirical analysis for this study, the expected impact of Medicaid fees on access to physician services has to be carefully considered. Although a good deal of research, as discussed previously, has shown that low fees result in

providers dropping out of the program and, thus, reductions in access, it is not obvious what impact such reductions should have on the unduplicated count of individuals receiving Medicaid physician services which, expressed on a per capita basis (i.e. divided by state population), is the recipient variable examined in this study. One's initial expectation would be simply that lower fees are associated with fewer recipients. It is possible, however, that the short-term and long-term impacts of low fees on the number of physician service recipients, as distinguished from the intensity of services provided to those recipients, might be different. In the short term, reductions in the number of physicians participating in the program should be associated with decreases in numbers of recipients, as Medicaid enrollees lose access to doctors that had previously accepted them as patients. In the long-run, however, Medicaid recipients might be able to obtain some level of physician care from the providers remaining in the program, even if that care is less convenient or of a different type. For example, recipients may have to travel further to see a participating physician, or they may have to switch from a specialist to a general practitioner. Moreover, they may begin using outpatient departments as a substitute for some types of services they previously received in a physician's office, which might generate a physician as well as an outpatient bill. In any case, unduplicated recipient counts may not be affected as much by providers dropping out of the program in the long-run as in the short-run, because in the long-run recipients should be able to adjust to the reduced level of access and maintain enough contact with physicians to generate at least one bill. The amount and types of care Medicaid patients receive,

nonetheless, should be affected in both time frames by the level of Medicaid physician fees.

The generic model on which this analysis is based assumes that numbers of recipients, total expenditures, and spending per recipient -- all expressed on a per capita basis--are a function of factors related to the size of the welfare-eligible population within a state, the reimbursement and utilization control policies discussed above, and a state's supply of providers and overall demand for health care services. The following discussion focuses on the specific explanatory variables used in this analysis.

To obtain a precise estimate of the effect of reimbursement policy on the provision of physician services this analysis uses a numerical fee index, computed as the ratio of Medicaid to Medicare fees, rather than dummy variables for reimbursement method to represent states' physician reimbursement policies. The higher the ratio the more competitive Medicaid should have been in a state. Our expectation was that numbers of recipients and spending per capita would be positively related to the fee ratio in the physician equations, and negatively related to recipients and spending per capita in the outpatient equations.

On the outpatient side, data on actual rates paid were not similarly available. To create a set of outpatient reimbursement variables the state systems were classified into three mutually exclusive groups. The first group consisted of those states that used a traditional cost based methodology; the second group consisted of states that used an alternative

methodology (i.e. not Medicare cost-based style) that was not based on charges; and the third group consisted of those states that used a non-Medicare style methodology that was based on a percent of charges. The omitted, or reference, group was the Medicare cost-based category. The expected outcome with this classification scheme was that the variable representing alternative methodologies would be associated with lower spending and utilization, and the variable representing charge based methodologies would be associated with higher spending and utilization, relative to the cost based group.

There was a great deal of correlation within states in the use of utilization controls for physician services. In general, if a state applied limits to office visits, for example, it also applied limits to inpatient or nursing home visits by physicians. Because of possible multicollinearity problems if we used variables representing all three types of limits in a single equation, we used instead a variable representing the existence of any one of the three types of limits. Thus, if a state employed a limit of any kind during a year it was coded as applying visit limits. We expected the use of limits to be associated with lower physician spending per capita and spending per recipient. Likewise, in the outpatient equations, the service limit variable should be associated with lower total spending per capita and spending per recipient.

In addition to the limit variables, which represent constraints on coverage of physician and outpatient services, we used a variable representing coverage of routine physicals to examine the impact of more

generous coverage criteria on spending and utilization. This variable not only represents a specific coverage policy, but also should reflect, in part, the general attitude of the state toward service coverage. That is, states covering routine physicals are likely to be more generous in other ways as well--for example, they may be more likely to allow exceptions to their utilization control standards, or to set those standards less stringently. We expected states which covered routine physicals, in either physicians' offices or outpatient departments, to have more recipients and higher spending per capita than those that did not. As was discussed previously, although these utilization control measures are not ideal, they are still likely to reflect factors, either direct or indirect, associated with Medicaid use and spending.

We also used a set of control variables in each set of equations to account for other factors that are likely to influence states' coverage of and spending for Medicaid services. Per capita income is important because it provides a way to indirectly measure the demand for services in the private market within a state. In general, research has shown that the higher the income in a state, the higher the utilization of medical care. There are two hypothesized explanations for this association. The first is that individuals with higher incomes are better able to afford medical care, and thus are more likely to use it. The second is that higher income is a proxy for a more highly educated population, and more education is positively associated with the use of medical care. In either case, we expected per capita income to be negatively associated with Medicaid use because higher income is related to private demand. This should make access for Medicaid enrollees more difficult within the

overall medical care market. In addition, higher per capita income states have lower federal Medicaid matching rates, which means they have to contribute a higher proportion of the cost of providing services out of their own funds. This financing structure might also serve to produce a negative relationship between per capita income and Medicaid use, although in general wealthier states tend to spend more than poorer states on the program.

Our second demand related control variable is the proportion of the population receiving cash assistance under the Aid to Families with Dependent Children (AFDC) and Supplemental Security Income (SSI) programs. This variable represents the two main factors that determine the pool of individuals eligible to receive benefits under Medicaid. The first factor is the number of poor people within a state. In general, states with greater poverty populations should have more recipients and higher spending on Medicaid, all else being equal. At the same time, however, being poor does not automatically entitle one to Medicaid eligibility. States typically set their Medicaid eligibility criteria such that only a portion of the potentially eligible population is covered by the program (Holahan and Cohen, 1986). Thus, in addition to representing the extent of poverty in a state, the proportion of the population receiving cash assistance represents how generous the state is with its welfare eligibility criteria. For both of these reasons this variable should be positively related to Medicaid physician and outpatient utilization and spending.

The supply of medical care in a state is also likely to have an impact on its Medicaid spending. There are two medical care supply variables included in the equations estimated here to account for this relationship. The first is the number of doctors per capita, the second is the number of hospital beds per capita. These variables should also be positively related to the number of recipients and total spending per capita in both sets of equations, because access to care for Medicaid enrollees should be better where the supply of medical care is greater. They should be negatively related to spending per recipient, however, because the same level of access should be attainable at a lower price level in states with a greater supply of providers. Unfortunately, there is some correlation between per capita income and supply of services, supply being greater in higher income states, which makes it difficult to determine the independent effects of the supply and income variables in this analysis.

The remaining two sets of control variables are included to account for variation across states that is a function of geography and time, and not specific factors or policies within a state. Regional dummy variables are included to control for differences associated with factors, such as patient preferences and physician styles of practice, which cannot be easily quantified but do appear to have impacts on the utilization of medical care (Knickman and Foltz, 1985; Wennberg and Gittelsohn, 1982). Dummy variables representing time are included to account for trends that are not associated with variables specifically included in the equations estimated--for example, changes in attitude toward the use of Medicaid services by recipients or the desirability of accepting Medicaid patients

by providers that are not associated with changes in Medicaid reimbursement or utilization control policies, per capita income, or the supply of services.

Methodologically, this study uses ordinary least squares (OLS) regression analysis performed on pooled time-series cross-section data to estimate (in reduced form equations) the impact of various reimbursement and utilization control policies on physician and outpatient use and expenditures. Because we suspect that the impact of Medicaid physician fees on numbers of recipients is different in the short-run compared to the long-run, we use two different variations of our basic model in analyzing physician services. The first model focuses on the short-term impact of Medicaid physician fees by including a set of dummy variables to represent individual states. We were not able to run a set of short-run equations for outpatient services because data on actual outpatient fees were not available. The methodology used in the first set of physician equations, called least squares with dummy variables (Maddala, 1977), strongly controls for cross-sectional differences among states and, consequently, allows us to examine variations over time that are not confounded by time invariant state specific factors. The parameter estimates in this model reflect the association between the independent and the dependent variables, on average, within each state over the time period examined. Because this analysis covers only a 5 year period, the model including state dummy variables represents the short-term impact of Medicaid fees on physician service use and spending.

The long-run model simply excludes the state dummy variables, which means that the parameter estimates obtained from it reflect primarily the association between the independent and dependent variables across, rather than within states. Differences across states are a function of the cumulative effect of each state's past history of adjustment to factors that are specific to it. Thus, the cross-sectional models (physician and outpatient) represent the relationships between the variables of interest and physician and outpatient use and spending at the point of long-run equilibrium. The pooling of several years worth of data in this context simply allows us to take advantage of having multiple cross-sections.

To avoid heteroscedasticity problems the recipient and expenditure totals used as dependent variables are expressed on a per capita basis, using state population as the denominator. Expenditures were deflated by indices representing changes in physician (the physician component of the Medical Care Consumer Price Index) and hospital (the HCFA hospital market basket index) prices, respectively, to put them into constant (1979) dollars. All equations in both models were run in log-linear form to provide elasticities directly from the parameter estimates.

DATA

The Medicaid recipient and expenditure data used in this study are derived from a report submitted annually by states to the Health Care Financing Administration (HCFA). This report, known as the HCFA 2082, contains a detailed breakdown of Medicaid expenditures and unduplicated recipient counts by type of service and eligibility category. For

purposes of this study, the 2082 data for Federal fiscal years 1980 through 1984 were aggregated to produce recipient counts and total expenditures for physician and outpatient services for each state in each of the 5 years. Data on numbers of recipients and spending for Medicaid enrollees age 65 and over were excluded, because their eligibility for Medicare makes them subject to Medicare rather than Medicaid payment systems and utilization policies. Thus the expenditure and recipient data used in the empirical analysis reflects the under 65 population only.

The HCFA 2082 data are the most comprehensive available on the Medicaid program, and are widely used by researchers in empirical studies of Medicaid. To maintain the quality of the data base, HCFA routinely performs edits on the information reported by the states, and corrections are made where problems or inconsistencies are identified. We also performed our own edit check on the data, verifying the expenditure totals for each service category for each state against an audited report, called the HCFA 64, used by the federal government to compute federal matching payments. This verification procedure showed no problems with the 2082 data.

Despite the overall good quality of these data, as they are disaggregated by eligibility category within service types inconsistencies occasionally appear. With respect to this study, because of the need to create recipient and expenditure variables for physician and outpatient services for the non-aged eligibility categories only, a few such inconsistencies were encountered. Basically, these problems were related to non-uniform reporting by a state across years. For example, an

otherwise consistent time series of expenditures for a state might drop by two-thirds for one year in the middle of the series, because for that year outpatient expenditures for a relatively constant number of AFDC children were obviously misclassified on the state's 2082 report. In lieu of excluding an entire year of data for a state in these instances, a protocol was developed for making a reasonable imputation of the "true" value for the observations involved.

The protocol was based on an examination of inflation adjusted expenditures per recipient, rather than expenditures or recipients separately, because large fluctuations in that variable meant recipient counts and expenditures were not moving in the same direction at the same time indicating the kind of inconsistency described above. In cases where the change in the expenditures per recipient variable for one year exceeded 33% within an otherwise consistent time series, the separate expenditure and recipient values for that state were examined to determine which contained the inconsistent observation. That observation was then adjusted using a trend regression based on the remaining observations within the state. Thirty-three percent was chosen as the screen because it represented a conservative approach to the editing process. Setting the screen at this level meant that imputations were limited to a small number of extreme cases. In all only 19 out of 960 recipient and expenditure values were altered, which was slightly less than 2% of the total. Only one state, Indiana, had to be excluded from the analysis because its expenditure and recipient numbers fluctuated to such an extent that it was not possible to make a reasonable imputation of the data.

The National Governors' Association (NGA) collected data on Medicaid physician fees for this analysis. The NGA mailed a questionnaire to each state, and followed-up with phone calls when necessary. The questionnaire asked for information on fees for a brief office examination (CPT-4 Code 90040), and an appendectomy (CPT-4 Code 44950). Only Alaska was unable to respond to inquiries about its fees. To create the Medicaid fee index, this information was combined into a single weighted average fee, with weights of .60 and .40 respectively. These weights were based on the proportions of Medicaid physician expenditures accounted for by office, home, and hospital visits versus other procedures in a previous Urban Institute study of Medicaid fee controls and physician behavior in California, (Holahan, Scanlon, and Sulvetta, 1981). A similar Medicare physician fee index was also computed using the 1979 weighted average physician fee for Medicare from a separate Urban Institute study (Holahan, 1982). As discussed previously, Medicare fees were projected to 1980-1984 by multiplying the 1979 weighted fee by the applicable Medicare Economic Index for physicians. Finally, a state Medicaid fee ratio was computed by dividing the weighted average Medicaid fee by the weighted average Medicare fee for each year.

The NGA also obtained information on outpatient reimbursement methodologies and utilization control policies for both physician and outpatient services through telephone surveys of the states. These data were translated into dummy variables for the empirical analysis. In each case, the dummy variables were coded equal to 1 where a policy existed and otherwise, thus measuring that policy's presence or absence respectively.

Other data were obtained from a variety of sources, as described in the appendix.

RESULTS

Physician Services

The within state time series (short-run) physician service regression results are presented in Table 8. The utilization control and regional variables are excluded from these equations because they are highly correlated with the state dummy variables needed in this model to control for state specific time invariant factors, which include most of the utilization control policies and geographic location.

Note that the very high R-squares on these regressions are a result of the inclusion of dummy variables to represent the states. These variables control for otherwise unmeasured factors that vary across states and have an impact on levels of spending and recipients. Thus, the elasticities on the independent variables reported in Table 8 represent the impact of those variables after controlling for the state specific factors reflected in the state dummies. Most of the variance in these regressions is actually explained by the state dummy variables, however, which is indicative of the tremendous differences that exist across states in the structural factors that determine the comprehensiveness and generosity of their Medicaid programs.

[Table 8 goes about here]

The results of these regressions are consistent with the hypothesis that, at least in the short-run, changes in the fees paid to physicians under Medicaid, relative to Medicare fees, are associated with the number of individuals receiving physician services. The elasticity on the fee ratio in the recipients per capita regression is .25, indicating that a 1 percent change in the fee ratio leads to a .25 percent change in the per capita number of physician recipients. Although significant, this suggests that the relationship between fee levels and the number of enrollees able to obtain at least one service from a physician even in the short-run is not very elastic--i.e., changes in the fee ratio lead to changes in unduplicated per capita recipient counts that are only, on a proportional basis, one-quarter as large. The results also indicate that a significant determinant of the number of physician recipients per capita is the number of people a state is willing to make eligible for the program, with the elasticity on the proportion of the population receiving cash assistance equal to .74.

The short-run equations for physician expenditures per capita and expenditures per recipient show much higher elasticities on the fee ratio than the recipients per capita equation, .85 and .60 respectively, indicating that total spending and spending per recipient is more responsive to the relative level of Medicaid fees than is the number of people receiving services. Because we have no measure of exactly what types of services were delivered, it is not possible to determine with certainty using these data whether higher spending per recipient

represents simply higher prices for the same services, or higher intensity of services provided in response to more attractive Medicaid fees. To the extent fee ratio changes within states were due to changes in Medicare fees (the denominator in the ratio) rather than Medicaid fees (the numerator), however, changes in spending per recipient would represent changes in intensity because the Medicaid price would be a constant. Typically, changes in the fee ratio over the period examined in this study resulted from Medicare fees increasing faster than Medicaid fees, causing the fee ratio to decline. This suggests that changes in the fee ratio were associated with changes in either the mix or quantity of services provided rather than their price.

A final interesting result from the short-run physician expenditures per recipient regression is that the supply of doctors is negatively associated with per recipient physician service costs, and that the relationship between these two variables is fairly elastic (-1.05). This suggests that as the supply of doctors increases within a state the same level of service can be obtained without having to increase Medicaid fees.

The results of the cross-sectional (long-run) physician service regressions are presented in Table 9. These results show that the fee ratio is positively associated with total per capita physician spending and spending per recipient, with elasticities of .50 and .51 respectively, but not with the number of recipients per capita. Again, this is consistent with our hypothesis and the Long, Settle and Stuart (1986) study that over time Medicaid recipients can adjust to lower levels of access and still maintain at least a minimal level of contact with

physicians. Because the cross-sectional models do not contain state dummy variables, we were able to include policy variables in these equations. The results in Table 9 show that the existence of physician visit limits is negatively associated with physician spending per recipient, showing an elasticity of -.09, but not with per capita physician spending or numbers of recipients. Coverage of routine physicals is positively associated with the number of physician recipients per capita and total per capita physician spending, but not with physician spending per recipient. The results for the limit variable indicate that states with visit limits had approximately 9 percent lower physician spending per recipient than states that did not. This suggests that limits worked at least partly as they were designed to, by reducing the amount of services provided to individual recipients.

[Table 9 goes about here]

The results for the coverage of routine physicals variable also indicate that this policy functioned according to expectation, by increasing the per capita number of individuals receiving physician services. The more generous states, i.e., those covering routine physicals, had approximately 16 percent more physician recipients per capita and spent approximately 15 percent more per capita on physician services than states that did not have such coverage.

As was the case in the within state physician model, the results of the cross-sectional physician model indicate that the primary determinants of the number of physician service recipients and the level of total per

capita spending appear to be related to eligibility. The elasticity on proportion of the population receiving cash assistance is .89 in the recipients per capita equation and .86 in the expenditures per capita equation. This variable was not significant in the expenditures per recipient equation, however, which is consistent with the notion that eligibility criteria affect how many individuals gain entry into the system, but not the intensity of service they receive. Per capita income was negatively associated with the per capita number of recipients and positively associated with spending per recipient, suggesting that Medicaid patients with less intensive service needs may have access problems where private demand is high.

Among the remaining control variables, hospital beds per capita and one of the regional variables--west--were significant in at least one of the three equations. The results for these variables suggest that states with more hospital beds and locations in the west provide a higher intensity of service under the physician component of their Medicaid programs than states in the midwest, and states in the west, compared to the midwest, also have higher overall physician spending per capita.

The outpatient regression results, which are all cross-sectional, are presented in Table 10. Each set of outpatient equations was run both with and without the physician fee ratio as an independent variable. There was little difference in estimates for the remaining variables between the two specifications, consequently only the full model results are reported here. The assumptions underlying the inclusion of the fee ratio were that states set their Medicaid physician fees independent of their outpatient

reimbursement rates, and that any changes in utilization patterns are a result of recipients losing access to physician services and then taking advantage of available outpatient care as an alternative. That is, recipients will use physician services first, and will substitute outpatient care only when either referred by a physician, or when physician services are not readily accessible. This sequential pattern of utilization makes the model a recursive one, which allows the use of OLS in estimating the equations.

[Table 10 goes about here]

The outpatient regressions indicate that there is a substitution effect where physcian fees are low. The recipients per capita equation shows a negative and significant relationship between the fee ratio and recipients per capita. This means that where Medicaid physician fees are high relative to Medicare fees, the number of per capita outpatient recipients is low, and where Medicaid fees are low relative to Medicare fees the number of per capita outpatient recipients is high, other factors being held constant. In addition, there is a positive and significant relationship between the fee ratio and outpatient spending per recipient. This suggests that the intensity of outpatient services is lower in states that have low physician fees, which may indicate the provision of services that could be performed by a physician in his office--for example, a consultation with a specialist.

With respect to spending per capita, the results are suggestive of a cost-increasing substitution effect, with an elasticity on the fee ratio

of -.18, but this result did not meet the .05 significance level criterion ($p < .06$). This suggests that the marginal cost of outpatient services provided to patients shifted from physician to outpatient care is low, but also that those patients may be underserved by the program.

It should be noted that shifts between physician and outpatient services are not the only dynamic possibilities within a state's Medicaid program. Although examing all of these possibilities is beyond the scope of this study, consideration was given to the impact that inpatient hospital reimbursement and utilization control policies may have had on outpatient use and spending. Over the 1980 to 1984 period, a number of states adopted new Medicaid inpatient hospital reimbursement methodologies which could also have precipitated an increase in the use of outpatient services. In the course of this study regressions including a set of reimbursement and utilization control variables developed for an analysis of Medicaid inpatient hospital services (Zuckerman, forthcoming) as independent variables were run to examine the issue of shifts between inpatient and outpatient care. The results of those regressions showed no association between inpatient policies and outpatient service use and spending.

According to the regressions presented in Table 10, the most important outpatient policy variables in terms of impact are alternative reimbursement method and coverage of routine physicals. States with alternative reimbursement systems had approximately 20 percent fewer recipients, 33 percent lower total expenditures, and 13 percent lower

spending per recipient than states with traditional cost-based reimbursement systems (the reference group in the classification scheme used).States that covered routine physicals under outpatient services had 19 percent more outpatient recipients per capita and 15 percent higher per capita outpatient spending. Limits on the types of services covered also appears to have affected the the number of outpatient recipients per capita, lowering the level by approximately 16 percent, but not overall per capita outpatient expenditures. This suggests such limits do perform a gatekeeper function, but don't necessarily result in overall cost savings. Percent of charges reimbursement shows no effect in any of the three equations.

Among the control variables proportion of the population receiving cash assistance, as in the physician equations, was very important in the outpatient recipients per capita and expenditures per capita equations, with elasticities of .98 and .86. In addition, although doctors per capita was not significant in the cross-sectional physician model, it was positive and significant in each of the outpatient equations. This suggests that the increasing supply of doctors in recent years might be associated more with access to institutional than office-based care in the Medicaid program, perhaps because it represents an increasing supply of specialists over general practitioners.

With respect to the regional variables, the outpatient regressions indicate that states in the east have fewer recipients per capita but higher spending per recipient and states in the south have fewer recipients and lower spending per capita than states in the midwest.

DISCUSSION

The physician service regression results indicate that, as expected, the attractiveness of Medicaid physician fees is a significant determinant of physician spending per capita and per recipient under the Medicaid program. The evidence with respect to physician service recipients, however, is somewhat mixed in that there appears to be a difference between the impact of fees in the short and long-run. Our hypothesis is that this reflects the ability of recipients to adjust to a smaller pool of potential providers over time. To the extent this is true, these findings suggest that lowering fees results in a short-term reduction in access to care, but in the long-run does not affect the number of individuals generating at least one bill from a physician. It should be noted that the number of patients generating at least one bill from a physician is a weak measure of the appropriateness of care under the Medicaid program, however. The result of forcing recipients out of doctors' offices and into the hospital-based system is likely to be a move away from regular routine to higher priced and episodic institutional care, which has negative implications for quality as well as costs.

With respect to access, the most important determinants of the per capita number of recipients of physician services appear to be the states' poverty population and eligibility criteria, as reflected in the proportion of the state population receiving cash assistance. This variable also had the highest elasticity in the physician expenditure equation. Taken together, these results suggest that the most effective

way to increase access is by broadening eligibility, while restricting eligibility is the most effective way to control costs.

The reimbursement level and utilization policies, however, also had a significant impact on physician service access and costs under the Medicaid program. The coefficients on the fee ratio indicate that a 1 percent change in the ratio is associated with a .5 percent change in spending per capita and per recipient. This is somewhat smaller than the impact of eligibility factors but is still greater than the impact of any of the remaining variables. In addition, placing limits on the number of visits allowed under the program appears to be associated with lower physician spending per recipient (approximately 9 percent lower) suggesting either increased efficiency or lower quality, and coverage of routine physicals appears to be associated with higher physician service spending per capita(approximately 15 percent higher) presumably as a result of increasing the participation rate of individuals enrolled in the program. This result may be a function of the willingness of physicians to treat Medicaid patients. Where coverage criteria are more generous, and perhaps associated with lesser administrative costs, providers are probably less likely to discourage service use by program enrollees.

For outpatient services, the results again indicate that eligibility factors are the most important determinants of service use and spending but, as with the physician models, reveal that reimbursement and utilization policies play a significant role as well. Although actual outpatient fee data were not available, so we could not generate precise estimates of the impact of fees on outpatient services, our reimbursement

policy variables indicate that alternative reimbursement methodologies are associated with fewer recipients (approximately 20 percent), lower total spending (approximately 33 percent), and lower spending per recipient (approximately 13 percent) in comparison with traditional Medicare-style cost-based payment methods. In addition, coverage of routine physicals appears to increase total outpatient spending per capita (by approximately 15 percent) in the same manner as for physician services, i.e., by increasing the participation rate of program enrollees.

Another interesting finding in this study, which corroborates the findings of Long, Settle, and Stuart (1986) using aggregate Medicaid program data, is the negative relationship found between the physician fee ratio and numbers of outpatient recipients. The results presented here indicate that a 1 percent decrease in the physician fee ratio is associated with a .34 percent increase in the number of outpatient recipients, which indicates a substitution effect between physician and outpatient care. Combined with the results of the physician regressions, this suggests that in the long-run physician fees affect not only the amount and type of physician services provided, but the utilization patterns of recipients; in low fee states they apparently seek much more of a mix of physician and outpatient care.

The association between the physician fee ratio and outpatient expenditures per recipient is positive, suggesting that states with low physician fees provide less intensive services than do states with higher fees. This result is also consistent with the substitution hypothesis,

since what should be substituted are services that could be performed in a physician's office, whereas in states with higher physician fees outpatient care should be oriented toward more intensive, less substitutable types of care (e.g., surgery). In states with low physician fees, for example, specialist consultations and follow-up services might be more likely to be performed in an outpatient setting, while in states with high fees they would be more likely to be performed in a physician's office. In this case, outpatient services in the low fee states would be less intense on average than they would be in the high fee states, which is consistent with the results presented here.

Overall, then, these findings indicate that states which attempt to control their Medicaid spending by constraining physician fees will increase their use of outpatient services as a result. Although the evidence points to a loss of access in the short term by constraining physician fees, in the long-run it appears as though recipients adjust to reductions in access so that physicians maintain their position as an initial primary contact point. Thus, the difference in terms of access between high fee and low fee states appears to be what happens after a recipient's initial contact with a physician, rather than whether that contact occurs at all. In low fee states the recipient receives outpatient services in addition to physician services, while in high fee states he is more likely to receive physician services only. This, in turn, appears to lead to the provision of less intense services, on average, in outpatient departments in states with low physician fees.

CONCLUSIONS

This research has shown that reimbursement and utilization control policies do have a significant impact on aggregate Medicaid spending for specific services. On the physician side, the use of policies that constrain physician fees, limit the number of visits covered under the program, and exclude coverage of routine physicals are all associated with lower total spending. On the outpatient side, the use of alternative reimbursement systems and the exclusion of coverage of routine physicals are associated with lower total spending. Thus, states do have options short of reducing overall eligibility for the program that are effective in controlling, individually, total physician and outpatient costs.

The evidence indicates that the application of these cost control policies must be carefully considered, however. Holding other factors constant, where states have attempted to control physician spending by constraining payment rates they appear to have suffered an increase in outpatient service use as a result. The net result of this shift in utilization patterns is not clear. This analysis suggests that lowering Medicaid physician fees reduces physician spending while increasing outpatient service use but not, perhaps, outpatient spending. Thus, one might argue on the basis of this study that constraining physician fees is a reasonable policy in that it lowers physician costs without harming overall access, and has at worst a negligible impact on spending.

This line of reasoning may be inaccurate, however, in that it does not account for substitution effects in non-outpatient categories. That a substitution effect exists between physician and outpatient services suggests that such an effect may exist between physician and other services as well. There may be a similar effect between physician and clinic or physician and inpatient services, for example. Long, Settle, and Stuart (1986) did in fact find that approximately half of those losing access to office-based care found care at free-standing clinics. Thus, although the indirect impact of lower physician fees on spending for other services may be less easily seen than their direct impact on spending for physician services, in the aggregate the former effect may more than offset the latter. Unfortunately, examing all of the possibilities to determine the magnitude of this aggregate effect is beyond the scope of this study.

Moreover, there are other implications to such a policy that argue for caution in constraining Medicaid physician fees. Quality of care should also be an important consideration. It is possible that increased use of institutional services by Medicaid recipients at the expense of routine office-based care could have undesirable effects on quality by making it difficult for welfare families to maintain an ongoing relationship with a physician. Ad hoc use of services seems particularly likely to disrupt necessary routine care for children, who constitute the overwhelming majority of non-aged Medicaid recipients.

In sum, the results of this study indicate that reimbursement and utilization control policies do have a significant direct impact on

Medicaid spending for physician and outpatient services. They also indicate, however, that these policies when applied to primary services such as physician care can have indirect effects on other areas of the program as well. This suggests that states need to give careful consideration to the overall impact of the rate and utilization control policies they choose to adopt, rather than focus solely on their effects on individual services, because of the complex relationships that exist between those policies and overall Medicaid service utilization and spending.

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Table 1

Medicaid Physician Service Recipients and Expenditures
1979 to 1984

Year	Expenditures ($s in millions) Nominal	Expenditures ($s in millions) Constant	Recipients (in Thousands)	Expenditures Per Recipient Nominal	Expenditures Per Recipient Constant $
1979	$1,785.3	$1,785.3	13,750.7	$129.83	$129.83
1980	2,018.2	1,802.0	13,764.4	146.62	130.92
1981	2,321.4	1,857.1	14,403.0	161.17	128.94
1982	2,274.4	1,672.4	13,893.5	163.70	120.37
1983	2,380.2	1,619.2	14,056.0	169.34	115.20
1984	2,460.4	1,557.2	14,216.9	173.06	109.53
		Average Annual Rate of Growth			
1979-84	6.6%	-2.7%	.7%	5.9%	-3.3%

Source: HCFA 2082 reports, unpublished.

Table 2

Ratio of Medicaid to Medicare Fees, 1979-1984

State	1979	1980	1981	1982	1983	1984
Nevada	1.13	1.06	1.09	1.00	.92	.87
Delaware	1.06	NA	NA	.91	.88	.83
Minnesota	1.06	.99	1.09	1.00	.92	.87
Louisianna	1.02	.95	.94	.86	.79	.56
Indiana	1.00	NA	NA	.50	.46	.71
Iowa	1.00	NA	NA	NA	.87	.86
Nebraska	1.00	NA	NA	NA	.83	.88
North Carolina	1.00	.93	.90	.82	.76	.72
Oklahoma	1.00	.103	.97	.98	.99	.94
Texas	1.00	.93	.86	.83	.76	.72
Utah	1.00	.93	.86	1.14	1.05	.99
Wisconsin	1.00	.94	.96	.96	.80	.78
Wyoming	1.00	1.02	1.04	1.04	1.03	1.02
Kentucky	.99	.88	.81	.86	.79	.90
North Dakota	.98	.92	.91	.83	.77	.72
South Carolina	.95	.93	.90	.74	.67	.64
New Mexico	.94	.88	.81	.74	.68	.64
Hawaii	.93	.83	.80	.81	.78	.66
Arkansas	NA	NA	.43	.40	.36	.32
Oregon	.90	.84	.78	.75	.72	.71
South Dakota	.90	1.03	.95	.87	.80	.75
Tennessee	.90	.88	.81	.77	.71	.80
Idaho	.89	.83	.76	.65	.60	.57
Georgia	.88	NA	.87	.83	.76	.72
Alabama	.83	NA	NA	.99	.91	.86
Washington	.80	.67	.66	.64	.59	.57
Michigan	.78	.73	.61	.56	.51	.49
Mississippi	.77	.72	.66	.61	.54	.67
Montana	.76	.78	.79	.73	.74	.70
Ohio	.74	.69	.64	.58	.54	.51
Vermont	.72	.71	.65	.60	.55	.52
Colorado	.71	.87	1.04	.95	.87	.86
Kansas	.70	.65	.60	.57	.53	.50
New Hampshire	.69	.64	.59	.54	.50	.47
District	.68	.64	.58	.56	.51	.70
West Virginia	.68	.65	.60	.54	.50	.47
Maine	.65	.61	.56	.51	.47	.44
California	.62	.63	.63	.61	.50	.48
Massachusetts	.62	.65	.60	.47	.50	.48
Virginia	.62	.58	.53	.51	.47	.45
Illinois	.61	.57	.53	.49	.45	.42
Rhode Island	.59	.55	.57	.52	.48	.45
Connecticut	.54	.61	.56	.51	.47	.45
Missouri	.54	.55	.50	.46	.43	.40
Florida	.52	.49	.45	.41	.38	.36
Maryland	.51	.48	.45	.42	.41	.39
New Jersey	.41	.38	.35	.33	.31	.29
Pennsylvania	.37	.35	.32	.30	.24	.22
New York	.33	.31	.29	.26	.24	.23

NA = not available.

Table 3

Summary of Medicaid Program Characteristics for Physician Services

Number of States

	1980	1981	1982	1983	1984
Reimbursement Systems:					
Fee Schedule	29	31	32	36	37
CPR	19	17	16	12	11
Utilization Controls:					
Limits on Physician Office Visits	14	15	16	17	17
Limits on Inpatient Hospital Visits	18	18	20	20	21
Limits on Long-Term Care Visits	21	22	22	23	23
Coverage of Routine Physicals	21	21	20	20	20

Source: National Governor's Association survey of states.

*Alaska and Indiana are omitted from this analysis because of missing or incomplete data.

Table 4

Implementation Dates of Medicaid Physician Utilization Controls and Reimbursement Policies, by State 1980-1984[a]

	Reimbursement Systems			Limits on Visits			Coverage of Routine Physicals
	Fee Schedule	RVS	CPR	Office	Inpatient Hospital	Long-Term Care	
Alabama	82	—	80	83	80	83	—
Arkansas	84	—	80	80	80	80	80
California	—	80	—	—	80	—	80[b]
Colorado	—	80	—	—	81	—	—
Connecticut	—	80	—	—	80	—	80
Delaware	80	—	—	—	84	—	—
District	—	80	—	—	80	—	80
Florida	—	80	—	80	80	80	—
Georgia	81	—	80	80	80	80	—
Hawaii	—	—	80	—	80	80	80
Idaho	80	—	—	—	80	—	—
Illinois	80	—	—	—	80	—	—
Iowa	—	—	80	—	80	—	—
Kansas	83	—	80	80	80	80	80
Kentucky	—	—	80	—	80	—	80
Louisiana	—	—	80	80	80	80	—
Maine	80	—	—	—	—	—	80
Maryland	80	—	—	—	80	—	—
Massachusetts	80	—	—	80	80	80	80
Michigan	80	—	—	—	80	80	—
Minnesota	—	—	80	—	80	—	80
Mississippi	80	—	—	80	80	80	—
Missouri	80	—	—	80[c]	80	80	80
Montana	—	80	—	—	80	—	80
Nebraska	—	—	80	—	80	—	—
Nevada	—	80	—	80	80	80	—
New Hampshire	80	—	—	81	80	81	80
New Jersey	80	—	—	—	80	—	80
New Mexico	—	—	80	—	80	—	—
New York	83	80	—	—	80	—	80
North Carolina	83	—	80	—	82	—	—
North Dakota	81	—	80	—	80	80	80
Ohio	80	—	—	80	80	80	—
Oklahoma	—	—	80	80	80	80	—
Oregon	—	80	—	—	80	—	—
Pennsylvania	80	—	—	—	—	—	80
Rhode Island	80	—	—	80	—	80	80
South Carolina	—	83	80	82	80	—	—
South Dakota	80	—	—	—	80	—	—
Tennessee	—	—	80	82	80	80	—
Texas	—	—	80	—	80	—	—
Utah	80	—	—	—	80	—	—
Vermont	80	—	—	80	80	80	80
Virginia	80	—	—	—	80	—	—
Washington	—	80	—	80	80	80	—
West Virginia	—	80	—	—	80	80	—
Wisconsin	83	—	80	—	80	80	80
Wyoming	—	—	80	—	80	80	80

Source: National Governors' Association survey of states.

Note: Alaska and Indiana are omitted from this analysis because of missing or incomplete data.

a. 80 = implemented either prior to or during 1980.
b. Policy stopped in 1982.
c. Policy stopped in 1984.

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Table 5

Medicaid Outpatient Service Recipients and Expenditures
1979 to 1984

Year	Expenditures ($s in millions) Nominal	Expenditures ($s in millions) Constant	Recipients (in Thousands)	Expenditures Per Recipient Nominal	Expenditures Per Recipient Constant $
1979	$880.9	$804.3	9,384.9	$93.87	$85.71
1980	1,051.7	860.8	9,858.7	106.68	87.31
1981	1,260.7	919.9	10,315.6	122.15	89.26
1982	1,371.2	901.9	10,104.2	135.71	89.26
1983	1,479.4	905.9	10,226.0	144.67	88.58
1984	1,609.9	933.5	10,509.1	153.19	88.83
		Average Annual Rate of Growth			
1979-84	12.8%	3.0%	2.2%	10.3%	.7%

Source: HCFA 2082 reports unpublished.

Table 6

Summary of Medicaid Program Characteristics for Outpatient Services

Number of States

	1980	1981	1982	1983	1984
Reimbursement Methodology:					
Medicare Style	28	28	27	25	24
Alternative	15	15	15	18	18
Percent of Charges	5	5	6	5	6
Utilization Controls:					
Limits on Specific Services	42	42	43	42	42
Coverage of Routine Physicals	20	20	20	19	19

Source: National Governors' Association survey of states.

*Alaska and Indiana are omitted from this analysis because of missing or incomplete data.

Table 7

Implementation Dates of Medicaid Outpatient Utilization Controls and Reimbursement Policies, by State 1980-1984[a]

	Reimbursement			Utilization Controls	
	Medicare-Style	Alternative	Percent of Changes	Limits on Specific Services	Coverage of Routine Physicals
Alabama	80	—	—	80	—
Arkansas	—	80	—	80	80
California	—	80	—	80	80[b]
Colorado	80	—	—	—	—
Connecticut	—	80	—	80	80
Delaware	80	—	—	—	—
District	80	—	—	80	80
Florida	82	80[c]	—	80	—
Georgia	80	—	—	80	—
Hawaii	—	80	—	80	80
Idaho	80	—	—	80	—
Illinois	80[b]	83	—	80	—
Iowa	—	—	80	80	—
Kansas	80	—	—	80	80
Kentucky	80[d]	—	84	80	80
Louisiana	—	—	80	80	—
Maine	80	—	—	80[d]	80
Maryland	—	80	—	80	—
Massachusetts	80[b]	83	—	—	80
Michigan	80[b]	83	—	80	—
Minnesota	—	83	80[b]	80	80
Mississippi	—	—	80	80	—
Missouri	—	80	—	80	80
Montana	80	—	—	80	80
Nebraska	80	—	—	80	—
Nevada	—	80	—	80	—
New Hampshire	80	—	—	80	80
New Jersey	—	80	—	80	80
New Mexico	80	—	—	80	—
New York	—	80	—	80	80
North Carolina	—	80	—	80	—
North Dakota	80	—	—	—	80
Ohio	80	—	—	80	—
Oklahoma	—	80	—	80	—
Oregon	—	80	—	80	—
Pennsylvania	—	80	—	80	80
Rhode Island	80[c]	82	—	80	80
South Carolina	80[c]	—	82	80	—
South Dakota	80	—	—	80	—
Tennessee	80	—	—	80	—
Texas	80	—	—	80	—
Utah	—	—	80	80	—
Vermont	80	—	—	80	—
Virginia	80	—	—	80	—
Washington	80	—	—	80	—
West Virginia	—	80	—	82	—
Wisconsin	80	—	—	80	80
Wyoming	80	—	—	—	80

Source: The National Governors' Association survey of states.

Note: Alaska and Indiana are omitted from this analysis because of missing or income data.

a. 80 = implemented either prior to or during 1980.
b. Policy stopped in 1983.
c. Policy stopped in 1982.
d. Policy stopped in 1984.

Table 8

Physician Service Regression Results
Log-Linear Model with State Dummy Variables
(Standard Errors in Parentheses)

Independent Variables	Recipients Per Capita	Expenditures Per Capita	Expenditures Per Recipient
Reimbursement Variable:			
Fee ratio	.25*	.85*	.60*
	(.09)	(.12)	(.11)
Control Variables:			
Proportion of population receiving cash assistance	.74*	.82*	.07
	(.10)	(.15)	(.13)
Per capita income	-.04	-.01	.04
	(.21)	(.30)	(.26)
Doctors per capita	.60	.44	-1.05*
	(.38)	(.55)	(.48)
Hospital beds per capita	-.01	.06	.06
	(.13)	(.19)	(.17)
1981	.02	.04	.03
	(.02)	(.03)	(.03)
1982	.04	.09	.05
	(.04)	(.05)	(.04)
1983	.03	.15*	.12*
	(.04)	(.06)	(.06)
1984	.01	.15*	.14*
	(.05)	(.07)	(.06)
State dummy variables not separately reported			
Intercept	6.33*	5.44*	6.02*
	(1.86)	(2.68)	(2.36)
R^2	.98	.96	.94
F-ratio	130.38*	76.35*	49.02*

*Statistically significant at the .05 level or better.

Table 9

Physician Service Regression Results, Log-Linear Cross-Sectional Model
(Standard Errors in Parentheses)

Independent Variables	Recipients Per Capita	Expenditures Per Capita	Expenditures Per Recipient
Reimbursement and Utilization Control Policy Variables:			
Fee ratio	-.01 (.05)	.50* (.08)	.51* (.06)
Limits on visits	.003 (.03)	-.08 (.05)	-.09* (.04)
Coverage of routine physicals	.16* (.03)	.15* (.06)	-.004 (.04)
Control Variables:			
Proportion of population receiving cash assistance	.89* (.04)	.86* (.08)	-.03 (.06)
Per capita income	-.45* (.14)	-.08 (.24)	.37* (.19)
Doctors per capita	.02 (.09)	.23 (.16)	.20 (.12)
Hospital beds per capita	-.11 (.08)	.24 (.14)	.34* (.11)
East	-.01 (.06)	-.10 (.10)	-.09 (.08)
West	.001 (.05)	.24* (.10)	.24* (.07)
South	-.08 (.04)	.02 (.07)	.10 (.06)
1981	-.01 (.04)	.01 (.07)	.02 (.06)
1982	.01 (.04)	.02 (.08)	.002 (.06)
1983	.01 (.05)	.04 (.08	.03 (.06)
1984	-.002 (.05)	.01 (.08)	.01 (.06)
Intercept	10.56* (1.15)	4.73* (2.03)	1.08 (1.56)
R^2	.83	.57	.50
F-ratio	73.72*	20.09*	15.12*

*Statistically significant at the .05 level or better.

Table 10

Outpatient Service Regression Results
Log-Linear Model
(Standard Errors in Parentheses)

Independent Variables	Recipient Per Capita	Expenditures Per Capita	Expenditures Per Recipient
Reimbursement and Utilization Control Policy Variables			
Alternative reimbursement method	-.20* (.05)	-.33* (.06)	-.13* (.05)
Percent of charges reimbursement method	-.04 (.07)	-.09 (.08)	-.05 (.07)
Limits on services covered	-.16* (.07)	-.06 (.08)	.10 (.07)
Coverage of routine physicals	.19* (.05)	.15* (.06)	-.05 (.05)
Physician Fee ratio	-.34* (.08)	-.18 (.10)	.16* (.08)
Control Variables:			
Proportion of population receiving cash assistance	.98* (.07)	.86* (.08)	-.12 (.07)
Per capita income	-.63* (.23)	-.07 (.27)	.56* (.22)
Doctors per capita	.58* (.15)	.96* (.17)	.39* (.14)
Hospital beds per capita	-.25 (.14)	-.19 (.16)	.07 (.13)
East	-.20* (.09)	.14 (.10)	.34* (.09)
West	-.15 (.08)	-.10 (.10)	.05 (.09)
South	-.32* (.07)	-.32* (.08)	-.001 (.06)
1981	-.06 (.07)	.03 (.08)	.09 (.07)
1982	-.05 (.07)	.04 (.08)	.09 (.07)
1983	-.06 (.08)	.07 (.09)	.13 (.07)
1984	-.11 (.08)	.04 (.09)	.15* (.07)
Intercept	12.06* (1.97)	4.02* (2.29)	-1.12 (1.91)
R^2	.79	.81	.44
F-ratio	50.91*	56.02*	10.21*

*Statistically significant at the .05 level or better.

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APPENDIX

Sources of State Specific Variables

MEDICAID EXPENDITURES AND RECIPIENTS

Source: HCFA 2082 reports.

PHYSICIAN FEES:

A. Average Medicaid Rates:

Source: National Governors Association Survey, Unpublished.

B. Average Medicare Fees:
Source: Holahan, Gornick, Nichols, 1981.

C. Medicare Economic Index
Source: Federal Register, Vol. 50, no. 189

MEDICAID POLICIES

Source: National Governors Association Survey, Unpublished.

TOTAL CASH ASSISTANCE RECIPIENTS:

A. AFDC Recipients
Source: Unpublished Data, Department of Health and Human Services, Office of Family Assistance

B. SSI Recipients:
Source: U.S. Department of Health and Human Services, Social Security Bulletin

NET INCOME

Source: U.S. Internal Revenue Service, Statistics of Income (SOI) Bulletin

NON-FEDERAL DOCTORS

Source: American Medical Association, Physician Characteristics and Distribution

NON-FEDERAL COMMUNITY HOSPITAL BEDS

Source: American Hospital Association, Hospital Statistics

POPULATION

Source: U.S. Bureau of Census, Current Population Reports