State Medicaid Managed Care Enrollment: Understanding the Political Calculus That Drives Medicaid Managed Care Reforms

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Abstract The objective of this article is to understand the political motivations underlying Medicaid managed care reforms by examining the determinants of enrollment of beneficiaries in managed care plans in the fifty states. To highlight the role of the model variables, including measures of the political environment, public interest, and special interests, a distinction is made between capitated and fee-for-service managed care enrollment. The results show that cost containment within the context of the Medicaid program is perceived as strongly favored by voters. Accordingly, the relative cost and tax price of providing Medicaid services are important factors in states’ decision to enroll Medicaid beneficiaries in managed care plans, particularly capitated ones. The results also indicate a surprisingly significant influence by labor unions that generally oppose managed care enrollment for fears of lost jobs. The recipient population and provider groups also play an important role in shaping the Medicaid managed care landscape. The influence of variables measuring states’ ability and willingness to pay and median voter preferences suggest that, within the context of Medicaid managed care enrollment, the public’s interests are being served; however, the results also point toward inequities within the program and implications concerning financing arrangements between states and the federal government.

Introduction

The fee-for-service (FFS) structure of health insurance coverage, along with advances in medical technology, has been identified as a major contributor to the enormous growth in U.S. health care expenditures (Weisbrod 1991; Fuchs 1996), which, by the end of the twentieth century, claimed over 14 percent of gross domestic product. Change was unavoid-
able, and the experience of the 1990s indicates that it came in the form of managed care. This is true for both the privately insured and beneficiaries of public health programs such as Medicaid.

Enrollment of Medicaid beneficiaries in managed care programs was seen by many policy makers as the answer to what was (and still is) a mildly popular but fiscally burdensome—and therefore difficult to sustain—program (Beamer 1999; Sparer and Brown 2000; Cook and Barrett 1992; Grogan and Patashnik 2003). In 1981, less than 2 percent (±0.27 million) of the nation’s Medicaid-eligible population was enrolled in managed care plans. A decade later, enrollment had grown to include more than 10 percent (±3 million) of the eligible population, and in 1997 enrollment accounted for more than 50 percent (±19 million) of the nationwide eligible population (U.S. Department of Health and Human Services 1996).

The remarkable growth of enrollment of Medicaid beneficiaries in managed care plans at the national level is characterized by substantial variation among the states. Why do some states appear reluctant to enroll their eligible population in managed care plans while others use this method almost exclusively to deliver Medicaid-covered health care services? The hope that managed care will enhance access to the eligible population, improve the quality of care, and reduce the program’s cost clearly does not fully explain the observed state-level variation in managed care enrollment. This article develops a model to explain the variation between states in enrollment of Medicaid recipients into managed care plans. The objective of this research is to understand the political motivations that drive Medicaid managed care reforms and how these vary among the different forms of managed care, including fully capitated plans and those based on traditional FFS reimbursement.

The remainder of this article is organized as follows. First, I discuss the appeal and structure of managed care in the context of Medicaid. This is followed by a description of the theoretical framework and variables I use to explain enrollment of Medicaid recipients in managed care plans. Then I discuss the data, the econometric model, and the empirical results. The conclusions and the policy implications of the results are discussed in the final section. Two appendices are also included. Appendix A includes a detailed discussion of the control variables used in the model. Appendix B contains the results of a sensitivity analysis and supporting statistics relating to an alternative specification of the empirical model.
Medicaid Managed Care

The Appeal of Managed Care

In 1997, 33.6 million of the more than 40 million people who were eligible for Medicaid received at least one type of medical service covered by the program. The combined federal and state expenditures for these services exceeded $123 billion. The appeal of managed care relates largely to its ability and promise to contain the cost of health care delivery while maintaining or even enhancing quality of and access to care. Under this approach, a Medicaid beneficiary is enrolled with a participating organization or physician who acts as a gatekeeper to rendered services and is responsible for the provision, arrangement, and authorization for covered medical care. By focusing medical care delivery through a single primary care provider or organization, continuity is enhanced, resulting in improved efficiency and quality, elimination of redundancy, and greater patient satisfaction.

Faced with Medicaid expenses that threatened to overtake state budgets, legislators were eager for ways to cut costs. Conventional cost-containment alternatives include reductions in program eligibility, benefits, or provider reimbursements. Control over program size through manipulation of eligibility standards and coverage of optional services depends, at least in part, on macroeconomic conditions. Furthermore, changes at the margin are not likely to produce significant savings. Cutting benefits— for example, through utilization controls—is generally associated with a great deal of political heat, and reducing provider reimbursements is difficult given the already low rates Medicaid programs offer. In addition, provider groups are generally well organized in opposition to the latter. Alternatively, states have turned to the promotion of cost-effectiveness, in many cases implying managed care (Hurley and Freund 1988; Ku and Hoag 1998; Fossett and Thompson 1999; Sparer 1996; Fossett 1998), which was seen as a way to arrest the growth in hospital expenditures. The cost-containment motive promoting managed care was particularly strong during the early part of the 1990s, following years of accelerated growth. Another benefit related to the risk-based approach is predictability of expenses, which are limited to a sum of payments for all enrolled individuals \((i)\) over each period of time \((t)\):

\[
\text{expenses} = \sum_{t} \sum_{i} (\text{capitated amount})_{it}
\]
From the states’ point of view, a move from FFS to managed care has several other advantages. It allows the state to transform its role from a relatively passive third-party payer into an active system manager. First, under the managed care approach, the responsibility for controlling physician and recipient behavior falls on the managed care organization (MCO), which in turn can be monitored by the state. Conceptually, quality is improved by care management by limiting utilization of unnecessary or questionable care and by providing professional guidance to beneficiaries. Services are integrated, limiting duplication and providing a means for smooth transmission of health and administrative information between the components of care. By managing care in this way, states can address some of the more persistent complaints associated with Medicaid: inappropriate use of and excessive reliance on specific system contact points (particularly hospital emergency rooms) and erratic, episodic, and uncoordinated demand for care.

Second, the state can shift the responsibility for sufficient access to services, a long-standing policy problem, to the MCO (Holahan, Evans, and Zuckerman 1998). If one assumes that Medicaid managed care enrollees will gain access to all providers within the MCO’s network, problems related to recipients’ access to mainstream care could be alleviated. However, there is evidence that MCOs do not provide their Medicaid enrollees with the same choice of and, therefore, level of access to providers as they give to non-Medicaid members (Grogan 1997; Beamer 1999). They may provide Medicaid beneficiaries access only to providers who were already participating in the Medicaid program before joining the managed care network. Furthermore, there is evidence that some commercial plans have developed a Medicaid product line that is separate and distinct from their normal product line (McCue et al. 2001).

Finally, enrollment of Medicaid beneficiaries in managed care could help alleviate equity concerns. Many involved in the Medicaid policy process consider it unfair that health care benefits are provided to the unemployed but not to low-income workers and their families (Grogan 1997; Beamer 1999). Moreover, many legislators believe it is only “fair” that Aid to Families with Dependent Children (AFDC) recipients be enrolled under managed care since a significant proportion of employment-based insurance also switched from FFS.\(^1\) Grogan (1997: 833) reports that some

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\(^1\) The Aid to Families with Dependent Children (AFDC) program was eliminated by the Personal Responsibility and Work Opportunities Act of 1996 and replaced by Temporary Assistance for Needy Families (TANF). Since our study period ranges from 1990 to 1997, I will
policy makers argue that “as long as the state is paying for their care, the issue of fairness relative to other (more deserving) groups was irrelevant.”

Variation in State-Level Enrollment

Enrollment in Medicaid managed care exhibits substantial variation across states in four important ways: time, space, type of program, and payment regime. First, some states adopted managed care during the early 1980s while others appeared reluctant to adopt this alternative payment mechanism well into the 1990s. Second, while some states (e.g., Tennessee) enrolled their entire Medicaid population in managed care plans, others (e.g., Alaska and Wyoming) chose to enroll only a limited number of individuals if any. Third, different types of programs, ranging from FFS primary care case management (PCCM) to health maintenance organizations (HMOs), were implemented in different states. Fourth, while some states maintained FFS provider reimbursement for their managed care programs, others implemented fully capitated systems.

Variation in Program Type

Medicaid agencies face the option to purchase standard packages offered by an existing MCO or to develop new products that fulfill traditional Medicaid coverage. Enrollment can be voluntary or mandatory if the state successfully obtains a 1915(b) waiver from the Health Care Financing Administration (HCFA). Many states preferred MCOs with a mixture of commercial and Medicaid enrollment over Medicaid-only programs for several reasons (Holahan, Evans, and Zuckerman 1998). First, the mixture helps avoid the stigma associated with receiving care from Medicaid-only programs. Second, the presence of private-pay, higher-income patients can positively affect quality and provider attitudes. Finally, while it is doubtful that MCOs would want to cross-subsidize services to Medicaid recipients, the commercial operations are assumed to provide a financial cushion for the organization, aiding its survival. Recent evidence shows that the

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2. The Health Care Financing Administration (HCFA) is now known as Centers for Medicare and Medicaid Services (CMS). We will use the HCFA designation because of the time period of our study.
percentage of commercial-dominant plans (in which 0–26 percent of plan members are Medicaid beneficiaries) declined from 67.7 to 50.9 percent from 1992 to 1998. The percentage of commercial-mixed plans (in which Medicaid enrollees account for 26–75 percent of members) decreased from 21.6 to 13.8 percent between 1992 and 1995 but increased to 25.7 percent between 1996 and 1998. The percentage of Medicaid-dominant plans (in which membership consists of more than 76 percent Medicaid enrollees) increased from 10.8 to 23.5 percent during that same period (McCue et al. 2001).

Types of managed care programs differ widely with regard to their impact on provider behavior, because they employ different incentives and mechanisms aimed at reducing resource utilization in the short or long run. Particularly important is the method of reimbursement. It is, therefore, important to distinguish enrollment in different types of programs. There are two general approaches: (1) that of programs that rely on FFS, sometimes referred to as traditional Medicaid, and (2) that of programs that employ capitation or other financial risk (Hurley and Freund 1988).

Under PCCM, providers are paid retrospectively for services rendered and ordinarily receive an additional fixed periodical payment for each of their enrollees. This approach is based on the belief that enhancement in continuity of care may generate long-term savings through the coordination of beneficiaries’ care by a responsible, informed primary care practitioner (Hurley, Freund, and Paul 1993; Pauly, Hillman, and Kerstein 1990; Newhouse et al. 1985; Luft 1978; and Manning et al. 1984). Strengthening the patient-provider relational aspect should also improve outcomes, including patient satisfaction. Under capitated managed care, providers receive a fixed amount per patient for a given time period, regardless of the amount of resources actually devoted. This severing of the link between reimbursement amounts and incurred costs constitutes the “risk” of prepaid managed care. Institutions that provide for their enrolled patient group at an average cost below this fixed payment enjoy a profit. Conversely, those with an average cost above the fixed payment suffer a loss, generating powerful financial incentives for providers to minimize resource utilization.

Variation over Time

The percentage of managed care enrollment of Medicaid beneficiaries increased by almost 500 percent between 1991 and 1997, rising from less than 10 percent to almost 50 percent of the nationwide eligible population.
In 1991 eighteen states did not have any Medicaid managed care enrollment, while an additional eighteen states enrolled less than 10 percent of their eligible population. By 1997 only Alaska and Wyoming reported no Medicaid managed care enrollment, and only seven other states had enrollments of less than 10 percent (HCFA Managed Care Enrollment Report, 1991 – 1998).

During the time period covered by this study, the Health Care Financing Administration Office of Managed Care (1991 – 1998) reported the number of enrollees and the method of reimbursement for their associated plans annually in its managed care report (table 1). Enrollment was reported for five main types of plans: state-defined and federally qualified HMOs, PCCM, prepaid health plans (PHP), and health-insuring organizations.3 In addition, the reports also specified whether providers are reimbursed on a FFS, partially capitated, or fully capitated basis. Nationwide, enrollment in HMOs accounted for more than 40 percent of Medicaid managed care in 1997. The next most widely used method of managed care, PCCM, accounted for approximately 30 percent of enrollment from 1991 to 1997.

Table 1 also reports the percentage of managed care enrollment subject to either capitation or FFS. Nationally, more than 60 percent of managed care enrollment was fully capitated, approximately 6 percent was only partially capitated, and almost 30 percent was FFS throughout most of the study period. The data show a significant shift from FFS to capitation in 1997 with the latter climbing to almost 70 percent.

**Theoretical Framework**

There is ample evidence in the empirical literature supporting managed care’s ability to reduce resource utilization and costs (Miller and Luft 1994, 1997; Leibowitz, Buchanan, and Mann 1992; Pauly, Hillman, and Kerstein 1990; Newhouse et al. 1985; Luft 1978; and Manning et al. 1984). Considering the empirical evidence, one may question why some states have been reluctant to embrace this alternative method of reimbursement. The model I develop below allows us to test hypotheses related to four

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3. To be federally qualified, a health maintenance organization (HMO) must meet certain federally stipulated provisions focusing on the protection of consumers, including the provision of basic health services and monitoring quality of care. A prepaid health plan is an organization of medical groups (essentially full-time physicians in appropriate specialties) who undertake the provision of comprehensive care to an enrolled population for premium payments made in advance. A health insuring organization is an organization that provides for (or arranges) the provision of a comprehensive set of health care services on a prepaid capitated basis. Primary care case management (PCCM) is defined in the text.
groups of variables: (1) state political environment; (2) program-cost and public-interest variables; (3) interest-group variables; and (4) logistical and industry characteristics. The main variables of interest are the political environment and program-cost variables. The remaining variables are included in the model to control for their confounding influences.

“Managed care” is an umbrella term used to describe a wide variety of distinct programs. For example, HMO and PCCM programs are markedly different with respect to provider incentives, cost-containment expectations, ease of implementation, and legislators’ viewpoints. For this reason, the various stakeholders are not expected to be indifferent concerning enrollment of Medicaid recipients in either capitated or FFS programs. The objective of the model is to obtain an understanding of the political calculus underlying Medicaid managed care enrollment, in part by examining how the model variables behave differentially concerning the adoption of capitated HMO versus FFS PCCM enrollment. Therefore, the empirical estimation of the model will be repeated for three specifications of the dependent variable: (1) percentage enrollment in fully capitated plans.

Table 1  Percentage of Managed Care Enrollment in Different Types of Plans

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<tr>
<td>Health maintenance organization</td>
<td>44.03</td>
<td>43.41</td>
<td>37.04</td>
<td>49.93</td>
<td>43.53</td>
<td>53.27</td>
<td>41.09</td>
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<tr>
<td>State defined</td>
<td>(19.68)</td>
<td>(23.38)</td>
<td>(18.16)</td>
<td>(33.20)</td>
<td>(20.90)</td>
<td>(33.84)</td>
<td>(26.41)</td>
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<tr>
<td>Federally qualified</td>
<td>(24.35)</td>
<td>(20.03)</td>
<td>(18.88)</td>
<td>(16.73)</td>
<td>(22.63)</td>
<td>(19.43)</td>
<td>(14.68)</td>
</tr>
<tr>
<td>Primary care case management</td>
<td>35.86</td>
<td>31.77</td>
<td>31.74</td>
<td>35.98</td>
<td>34.57</td>
<td>29.66</td>
<td>23.94</td>
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<tr>
<td>Prepaid health plan</td>
<td>15.18</td>
<td>20.70</td>
<td>24.53</td>
<td>11.17</td>
<td>20.10</td>
<td>20.64</td>
<td>20.53</td>
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<tr>
<td>Health insuring organization</td>
<td>5.21</td>
<td>4.12</td>
<td>3.39</td>
<td>2.92</td>
<td>1.79</td>
<td>3.57</td>
<td>1.87</td>
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<th>Payment Method</th>
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<tr>
<td>Fee for service</td>
<td>30.98</td>
<td>29.25</td>
<td>30.73</td>
<td>30.82</td>
<td>29.48</td>
<td>29.68</td>
<td>23.95</td>
</tr>
<tr>
<td>Partially capitated</td>
<td>5.19</td>
<td>5.22</td>
<td>6.81</td>
<td>4.68</td>
<td>4.73</td>
<td>5.20</td>
<td>6.08</td>
</tr>
<tr>
<td>Fully capitated</td>
<td>63.83</td>
<td>65.52</td>
<td>62.47</td>
<td>64.50</td>
<td>65.79</td>
<td>65.11</td>
<td>69.97</td>
</tr>
</tbody>
</table>

Source: Health Care Financing Administration Office of Managed Care, 1991–1998
managed care plans, (2) percentage enrollment in FFS PCCM plans, and (3) overall percentage managed care enrollment. In the following discussion of the model variables and their hypothesized influences, the differences with respect to FFS versus capitated plans will be highlighted where relevant.

State Political and Administrative Environment

Two variables are considered within the context of the political environment. They are political affiliation and potential competition among political parties. It would be an understatement to say that managed care is not without its critics, and while the relevant debate is far from over, there is consensus regarding the acceptance and staying power of the industry. Despite disagreement over logistical and implementation issues, legislators from both major political parties appear to support enrollment of Medicaid beneficiaries in managed care programs. Indeed, many legislators conceptualized the transformation of the Medicaid program to managed care as a step toward the ultimate goal of universal health insurance. However, important differences remain regarding the underlying motivation of legislators.

Democrats tend to support managed care enrollment for its potential to solve or alleviate some of the more persistent policy problems plaguing the program. First, Medicaid managed care provides a potential to enhance access and provide quality mainstream care to low-income groups (Fossett and Thompson 1999). Second, managed care offers the potential to mend problems relating to inconsistent and unstable physician/patient relationships. Third, managed care enrollment could potentially help minimize the welfare stigma associated with the Medicaid program. Finally, as discussed earlier, managed care enrollment of Medicaid beneficiaries could help eliminate the inequities of providing benefits to the unemployed but not the working poor. This last concern is shared both by liberals and conservatives. The Clinton administration’s support for waivers to states to speed up the implementation of managed care provides evidence for this assertion (Fossett and Thompson 1999). In some states (e.g., Florida and Colorado), Republicans have raised concerns regarding physician choice but nonetheless support Medicaid managed care based on the promise of reduced costs (Beamer 1999). In addition to highlighting managed care’s

4. Burton (1999) presents a good overview of the origins and target of the criticism levied against managed care from the political Left.
fiscal benefits, moderates and conservatives emphasize the potential of Medicaid managed care to decrease uncompensated care by reducing the number of uninsured (Beamer 1999).

Despite some similarities, political affiliation and, by extension, ideology is hypothesized to influence the types of managed care programs that are implemented. While variability in conservative or liberal ideology exists within political parties, Democrats have traditionally held a more favorable viewpoint toward public welfare programs. To test this variable empirically, the proportion of the legislature that is Democrat is included in the model. Democrats are hypothesized to be particularly opposed to the capitated model of managed care, which could be perceived as a potential threat to such long-standing Medicaid issues as access and quality. Fee-for-service PCCM programs maintain much of the traditional structure of health care delivery systems and are probably seen as more favorable to these issues. Therefore, Democrats are not expected to oppose enrollment in this type of managed care program.

In addition to the simple composition of state legislatures, the dominance, or lack thereof, by a single party may influence public policy. If a single party dominates the political landscape, the resulting legislative monopoly could increase the price of legislation. Conversely, an evenly divided government implies a high degree of competition between parties, lowering the price of legislation, and consequently increasing the likelihood of public policy (Wendling and Werner 1980; Anderson and Tollison 1988; Crain 1979). When a high degree of competition exists among political parties, legislators may seek to please voters by supporting legislation that is perceived to be popular (Stigler 1972).

The influence of competition between political parties is tested empirically using an interparty competition index (IPC) constructed at the state level by considering the composition of the lower and upper houses and the gubernatorial office. The index ranges from 0 to 1. Higher values are associated with increased competition. Considering the high cost of the program and the associated transfer of income, cost containment is likely to be seen as favored by most voters. Therefore, if interparty competition increases the likelihood of legislation deemed favorable by voters, a positive relationship is expected between the index and the percentage of the Medicaid population enrolled in managed care plans. This is hypothesized to be particularly true in the case of capitated plans, which bear the promise of almost immediate savings. In contrast, the FFS-based PCCM approach relies primarily on enhanced access and continuity of care, which may lead to savings in the long term but increased expenditures
in the near term. If political competition is indeed centered on program cost savings, the effect of the IPC variable may be neutralized or even the opposite (negative) as in the capitated managed care case.

The above discussion suggests that interparty competition would increase the likelihood of legislation. However, it is also possible that an evenly divided government may result in gridlock between the political parties, therefore making legislation less likely. Accordingly, the IPC variable may be associated with either a nonsignificant influence in managed care enrollment or the opposite effect, as hypothesized previously.

Program Cost, Public Interest, and Beneficiary Population

According to public-interest theory, interventions in industries result from the public’s demand for legislative action as politicians pursue policies favored by most voters. In the context of public health, the median voter model describes taxpayers as utility maximizers who derive satisfaction from the consumption of goods and services as well as from the transfer of income to welfare recipients (Wade and Berg 1995; Pracht and Moore 2003). Factors such as existing budget pressures or the cost of programs may be important to the median voter since they are closely related to a state’s ability and willingness to pay for public programs (Cone and Dranove 1986; McEldowney 1998).

Based on the theory of public interest, four variables measuring program costs are included in the model: the relative budget deficit, the percentage growth rate in Medicaid expenditures, the tax price, and the ratio of per Medicaid recipient inpatient to overall state per capita inpatient expenditures. The program-cost variables are all expected to be positively related to enrollment of Medicaid beneficiaries in managed care plans. However, they are hypothesized to behave differentially regarding enrollment in either capitated managed care versus PCCM plans. Because capitated plans are expected to generate faster and greater savings, program costs are likely to play a more urgent role in enrollment. Therefore, I hypothesize that these variables will be more important predictors in the capitated managed care enrollment case both in terms of statistical significance and magnitude. The derivations and justifications for including these variables are discussed in detail in appendix A in the section titled “Program Cost Variables.”

In addition to program costs, policy makers may also be influenced by the public image of the groups comprising the Medicaid beneficiary popu-
lation (Kronebusch 1997). The median voter is hypothesized to have a relatively higher preference for providing public goods to children. Therefore, the percentage of AFDC recipients under the age of twenty-one is included in the model (Grannemann 1980; Kronebusch 1997). A negative relationship is expected between this variable and managed care enrollment. This is not to say that managed care is seen as necessarily harmful to children or adults, for that matter; however, it is generally perceived as a less generous alternative to FFS. Compared to children, adults may be seen as “less deserving” of public assistance. Therefore, the model also includes the percentage of AFDC adults enrolled in Medicaid. A positive relationship is hypothesized between this variable and managed care enrollment. The remaining groups are the elderly, blind, permanently disabled, adults who are associated with the AFDC program, and other Title XIX recipients. As before, the behavior of these variables is hypothesized to differ between the types of managed care plans. Because fully capitated plans are expected to be more restrictive compared to FFS PCCM, to the extent legislators differentiate between children and adults, advocacy for enrollment of these populations in the respective types of plans will also differ. The rationale for these variables is discussed in more detail in appendix A in the section titled “The Beneficiary Population.”

Special Interests

The economic theory of legislation emphasizes the role of interest groups in the legislative process. According to this view, groups that are or potentially would be affected by particular legislation are willing to pay a price to influence the outcome (Stigler 1971; Posner 1974; Peltzman 1976; Becker 1983; Feldstein 1990; Feldstein and Melnick 1984; Mueller 1986; Wendling and Werner 1980; Oster 1980; Fanara and Greenberg 1985; Cone and Dranove 1986; Graddy and Nichol 1989; Graddy 1991). The price may be expressed in terms of campaign contributions, volunteer time, or the promise of favorable votes during future elections (Becker 1983; Feldstein and Melnick 1984; Feldstein 1990; Graddy 1991; Mueller 1986; Oster 1980; Peltzman 1976; Posner 1974; Stigler 1971; Wendling and Werner 1980).

There are several constituencies whose interests are directly or indirectly affected by Medicaid program policies (Kronebusch 1997). Providers and beneficiaries are identified as the major players in the program. The success of each group in influencing legislative outcomes depends on the political characteristics and the economic constraints of that group,
policy makers’ attitudes toward the institution, and the resources the group is willing to expend toward obtaining their goals (Becker 1983; Peltzman 1976; Posner 1974; Stigler 1971). Some groups, such as hospitals, physicians, and recipients will be affected directly, while others will notice the impact indirectly. Each group’s influence on Medicaid managed care enrollment is the result of a complex structure of arguments that enter that group’s utility function.

Four interest groups were identified that are expected to be influenced, either directly or indirectly, by a decision to switch from traditional FFS to managed care: hospitals, physicians, recipients, and labor unions. A more detailed description and justification for the definition and inclusion of each variable measuring the influence of these groups is provided in appendix A in the section titled “Interest Groups.” The following extracts only the main points indicating the groups’ disposition toward managed care enrollment to motivate the expected influence of each variable.

Retrospective, cost-based reimbursement is associated with lower financial risk and, therefore, tends to be favored by providers. Two hospital variables are included in the model: the number of hospital beds per capita to measure the industry’s representation and the percentage of the industry made up by public institutions to account for the potentially differential disposition of this subset toward Medicaid managed care. In terms of physicians, specialists are hypothesized to be particularly opposed to managed care principles; therefore, the model includes the ratio of specialists to general practitioners (Simon, Dranove, and White 1998).

A more favorable environment, as perceived by providers, may increase their participation and, by extension, enhance access to services for recipients. Physician attitudes toward managed care, for example, are dictated by expectations of a loss of control in the decision-making process about appropriateness and extent of treatments, loss of income, increased administrative burden, and decreased patient interaction. Thus, providers and, indirectly, recipients are expected to favor cost-based reimbursement and oppose managed care enrollment. The number of recipients per capita is included in the model to control for the political influence of beneficiary groups. Finally, particularly where hospitals are concerned, more favorable financial arrangements with large health plans such as Medicaid could be beneficial for the industry’s labor force, hence the hypothesized interest by labor unions (see appendix A). The model uses union membership rates to account for the influence this constituency may have because of their opposition to the managed care phenomenon, which may be seen as potentially harmful to workers’ interests.
The extent to which these groups exert their influence is hypothesized to differ depending on the type of managed care. Capitated approaches are likely to appear more harmful to the interests described above; consequently, I hypothesize that the influence of these groups will be stronger in the model pertaining to enrollment in capitated plans. The differential is expected to manifest itself in terms of the significance and magnitude of the estimated coefficients.

Time-Related Effects and Policy Diffusion

Particularly during the time period covered by this article, states were understandably cautious in their implementation of Medicaid managed care and were therefore not likely to make sweeping changes (Sparer 1996; Ginzberg, Berliner, and Ostow 1997). This wait-and-see approach allowed states to learn from the experiences of others and avoid costly mistakes. Furthermore, a stepwise approach is less likely to attract the attention of interest groups that would otherwise oppose reform.

A cautious, stepwise approach may not always be feasible. Federal or state policies may indirectly or inadvertently speed up states’ efforts to increase enrollment of Medicaid beneficiaries in managed care programs. The Medicaid Voluntary Contribution and Provider Specific Tax Amendments of 1991, for example, capped disproportionate share hospital payments at roughly their 1992 levels, triggering a more vigilant search for alternative financing methods with a focus on savings. As a result, states’ interest in managed care as a cost-containment tool increased to compensate for loss of federal funds.

The relative time of implementing a program change may also be important for state comparisons. Policies and program changes take time to diffuse and grow to maturity. Unfortunately, simple year-specific dummy variables do not adequately capture this state-specific dynamic. To capture both the effects of the stepwise approach states are likely to take and the influence of the time lag, a state-specific trend variable is included that measures the number of years that have passed since an individual state Medicaid managed care program commenced. The generally observed trend in enrollment suggests that the influence of this variable should be positive, particularly for capitated managed care enrollment.

5. A state-level example of policy expediting state efforts to increase Medicaid managed care enrollment is the push by New York to make enrollment mandatory during the second half of the 1990s in anticipation of a budget shortfall (Ginzberg, Berliner, and Ostow 1997).
Logistical Considerations

The model includes two variables to account for general logistical considerations: the percentage of the non-Medicaid population enrolled in HMOs and the percentage of the population living in metropolitan areas.

Private-sector HMO enrollment and competition has been cited in several studies to explain the variation in Medicaid managed care enrollment across states, particularly concerning risk-based approaches (Grogan 1997; Lewin-VHI 1995; Gold, Chu, and Lyons 1995; Gold, Sparer, and Chu 1996; Sparer 1996; Fossett 1998; Holahan, Evans, and Zuckerman 1998; Sparer and Brown 2000; Fossett and Thompson 1999; McCue et al. 2001). During the early 1990s, many commercial HMOs heeded the encouragement of their states and participated in what was perceived as a potentially profitable and sizable Medicaid market, particularly as private-sector payment rates were declining (Holahan, Evans, and Zuckerman 1998; Kronick and Dreyfus 1998). In some states, this trend was short lived, and some MCOs subsequently chose to scale back or exit the Medicaid market altogether (Kronick and Dreyfus 1998; Fossett and Thompson 1999; Sparer and Brown 2000).

The option for commercial HMOs to participate and state-related differences in legislation and incentives resulted in a heterogeneous Medicaid managed care landscape, characterized by two highly variable ratios: the first is the ratio of existing to participating HMOs and the second is the ratio of participating HMOs to enrollees. To be sure, some states developed massive managed care programs for their Medicaid beneficiaries without the benefit of extensive commercial managed care experience. Nonetheless, states with higher HMO penetration rates have the advantage of established infrastructures, and the cost of attracting organizations into an area not previously serviced is minimalized. This advantage is particularly important for enrollment of beneficiaries in capitated managed care.

6. Fossett (1998) lists several cases in which the number of HMOs in a particular state does not reflect the proportion that actually participate in the Medicaid program. In Florida, for example, more than one-half of Medicaid recipients in capitated programs were enrolled in a single HMO. Grogan (1997) points out that some states (e.g., Montana and Kentucky) with low private HMO penetration rates have been pursuing implementation of risk-based managed care for Medicaid recipients. However, in California, where managed care has been established for decades and commercial HMO penetration rates are high, a large number of these organizations do not serve the Medicaid population (Sparer 1996).

Some states (e.g., Minnesota and New York) made participation in Medicaid managed care a condition for participation in other state-sponsored plans, thus making participation in the former more attractive. Other states require managed care plans to be licensed as HMOs. Other state-level details may be found in Ku and Hoag (1998).
plans (Grogan 1997). States with only minor managed care penetration and a relatively large Medicaid population would be particularly reluctant to transform their system rapidly. Lewin-VHI (1995) finds that private-sector enrollment and competition combined account for 31 percent of the variation in risk-based Medicaid enrollment across states. The percentage of the state population enrolled in an HMO is included in the model and is predicted to have a direct influence on Medicaid managed care enrollment.

The financial viability of managed care organizations relies largely on the size of the enrolled population, holding all other factors constant. The larger the population of enrollees, the lower the risks associated with selection bias and the greater the gains from potential economies of scale. Consequently, managed care in its conventional HMO form has been largely limited to urban areas. In contrast, the PCCM approach relies primarily on the willingness of primary care providers or organizations with primary care capacity to participate in the program, making it a more plausible alternative in rural areas. Therefore, enrollment in capitated managed care programs is expected to be inversely related to the percentage of the population living in rural areas, whereas the opposite is likely true for enrollment in PCCM. However, because the percentage of the population living in rural areas is only reported every ten years, there is no variation during the time period of this study, resulting in severe multicollinearity with the state fixed effects. To reduce the collinearity somewhat and test this hypothesis, a proxy, the percentage of the state's population living in nonmetropolitan areas is included in the model. The difference between the two measures is minor (the simple correlation between the variables is 0.86).

State Fixed Effects

The above discussion indicates that political culture may be an important factor concerning the adoption of new legislation. We can distinguish between traditional, moralistic, and individualistic political cultures. In layperson's terms, traditionalists seek to maintain the status quo, moralists interpret the government as a means of achieving better community (e.g., through welfare or public health programs), and individualists favor pri-

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7. In addition to private-sector enrollment and competition, Lewin-VHI (1995) explored the influence of the composition of the beneficiary population (e.g., special-needs groups that require expensive care) and states' reliance on noncapitated PCCM programs.
vate-sector initiatives (Sparer 1996). Within the context of Medicaid, the prevailing culture in a state will influence the extent, type, and structure of the program.8

The political legacy of states changes slowly and is difficult to quantify at any point in time using contemporary variables. State Medicaid eligibility requirements, for example, were likely determined decades ago. While they are influenced by the changing political environment this is generally a very slow process. Besides certain guiding principles, legislators operate in a “context that is shaped by political symbolism, state policy histories, party politics, and the institutional powers enjoyed by legislators and constituents” (Beamer 1999).9 Or, as stated by Sparer (1996: 196), “it is difficult for state policy makers to escape their state-based political environments. States instead look curiously at approaches taken in other states but then adopt initiatives that reflect state politics.”

In addition to political and legal environments, there are numerous other variables that may facilitate or impede Medicaid managed care enrollment but cannot be easily quantified. States use different implementation approaches (and face associated problems) and special incentives meant to increase or speed up enrollment.10 The implementation approach may call for a government-run HMO, perhaps one for each county; it may be based on attracting commercial plans, or, most likely, it may involve a combination of the two main methods. Other examples of such non-quantifiable variables include the unique characteristics of a state’s managed care infrastructure and the state’s prior experience with managed care organizations. Instead of attempting to model each state’s political and legal culture or the characteristics of its managed care infrastructure, fixed effects (state-specific dummy variables) are employed to capture

8. In a comparison of New York and California, Sparer (1996) details how the political culture affects their Medicaid programs. One important aspect of a state’s political environment is the degree to which bureaucrats are insulated from the influence of interest groups. For example, compared to California, New York’s bureaucrats “are influenced significantly by powerful interest groups (especially institutional medical providers and labor unions), most of whom have an interest in generous spending” (66). Indeed, based on per recipient spending, New York has a significantly more generous program than that of California. The author correctly points out that there are numerous other factors determining the generosity of the program. New York, for example, appeared to be more successful in maximizing federal assistance dollars. Nonetheless, the political environment cannot be dismissed. In 1997, New York and California spent, respectively, $7,781 and $3,345 per Medicaid recipient (HCFA 1991–1997a, 1991–1997b).


10. Examples of such incentives include increasing capitation payments, requiring plans to be licensed as HMOs, or linking state-employee managed care contracts with Medicaid managed care enrollment. More detailed overviews and additional examples are available in Fossett (1998) and Gold, Chu, and Lyons (1995).
the influences of states’ political and marketplace idiosyncrasies or geographic locations.\footnote{11}

Data and Estimation Methods

The data consist of a cross-section of the fifty states and a time series of six years. Data pertaining to the number of Medicaid-eligible individuals, the number of recipients, and their demographic composition were collected from annual publications of HCFA form 2082 (HCFA 1991 – 1997a). The annual HCFA Medicaid Managed Care Report (HCFA Office of Managed Care 1991 – 1998) provided us with the number of beneficiaries enrolled in managed care programs and the payment mechanisms used to reimburse associated providers. State budget, expenditure, and unionization data were collected from the \textit{Statistical Abstract of the United States}. State physicians’ data were derived from the American Medical Association’s \textit{Medical Practice Data by Census Division, State, and County Group}. Data on hospitals and private-sector managed care enrollment were compiled from \textit{Health Care State Rankings}, published by Morgan Quitno Press (1993 – 2001).

All three equations are estimated using the tobit maximum likelihood estimator (Tobin 1958). Particularly in the case of the two main equations, those for capitated managed care and PCCM enrollment, a large number of observations have a zero value for the endogenous variable, resulting in a censored sample. Ordinary least squares is, therefore, no longer consistent or efficient. Since data on managed care enrollment were not readily available for previous years, the equations are estimated for the 1991 to 1997 period.

Table 2 shows the means of the model variables. It is noteworthy that several variables are characterized by little or no variation over time. For example, the percentage of the population living in nonmetropolitan areas changes slowly over time, and in the case of some states (e.g., New Jersey), not at all. Therefore, the estimation is based primarily on variation across states. Also, the inclusion of the state fixed effects absorbs much of the geographic variation that would otherwise exist.\footnote{12} To determine

\footnote{11} It is common in panel data studies to include this type of control variable. See Pindyck and Rubinfeld (1976: 202 – 206) and Maddala (1977: 315 – 317). When the data involve a complete set of the population (i.e., all fifty states, as is the case here), econometric theory suggests that the fixed-effects model is preferred and most appropriate (see Greene 2000; Judge et al. 1988).

\footnote{12} For a discussion concerning the use of fixed-effects models see, for example, Greene (2000).
how sensitive the coefficient estimates are to the model specification, the regressions were executed using census divisions instead of state fixed effects. The results of this alternative specification are shown in appendix B. A second concern is the collinearity that may exist between some of the model variables. Appendix B contains a correlation matrix of all the explanatory variables. The highest correlation (-0.635) exists between the percentage of the population living in nonmetropolitan areas and the percentage of the population enrolled in an HMO, suggesting the potential presence of moderate multicollinearity, making interpretation of these variables difficult. All other correlations are relatively low. The rule of thumb for suspecting severe multicollinearity is a simple correlation coef-

Table 2  Summary of Model Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>1991 Mean</th>
<th>1997 Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dependent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>All Medicaid managed care enrollment (percent)</td>
<td>9.43</td>
<td>59.06</td>
</tr>
<tr>
<td>Capitated Medicaid managed care enrollment (percent)</td>
<td>3.63</td>
<td>37.84</td>
</tr>
<tr>
<td>Primary care case management enrollment (percent)</td>
<td>5.63</td>
<td>16.26</td>
</tr>
<tr>
<td>Political and Administrative Environment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percentage of the legislation classified as Democrats</td>
<td>64.04</td>
<td>41.30</td>
</tr>
<tr>
<td>Interparty competition index</td>
<td>0.31</td>
<td>0.33</td>
</tr>
<tr>
<td>Interest Group Variables</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Per capita hospital beds</td>
<td>4.92</td>
<td>3.36</td>
</tr>
<tr>
<td>Percentage public hospitals</td>
<td>26.75</td>
<td>24.91</td>
</tr>
<tr>
<td>Ratio of specialists to general practitioners</td>
<td>1.99</td>
<td>2.41</td>
</tr>
<tr>
<td>Percentage of labor force represented by unions</td>
<td>14.82</td>
<td>13.06</td>
</tr>
<tr>
<td>Medicaid recipients per capita</td>
<td>10.08</td>
<td>11.96</td>
</tr>
<tr>
<td>Cost Considerations and Public Interest</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ratio of Medicaid inpatient hospital expenditures per recipient and per capita expenditures for hospital care</td>
<td>1.99</td>
<td>1.45</td>
</tr>
<tr>
<td>State relative budget deficit</td>
<td>4.35</td>
<td>-8.86</td>
</tr>
<tr>
<td>Tax price (100 - federal medical assistance percentage)</td>
<td>38.11</td>
<td>39.92</td>
</tr>
<tr>
<td>Percentage of recipients classified as adult AFDC recipients</td>
<td>19.75</td>
<td>18.33</td>
</tr>
<tr>
<td>Percent of recipients aged twenty-one or less</td>
<td>45.69</td>
<td>45.80</td>
</tr>
<tr>
<td>Industry and Logistical Considerations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percentage of state population in nonmetropolitan areas</td>
<td>35.03</td>
<td>31.83</td>
</tr>
<tr>
<td>Percentage of the private sector enrolled in health maintenance organizations</td>
<td>11.64</td>
<td>20.28</td>
</tr>
</tbody>
</table>

*Note*: States are rated using a letter-grade system (e.g., A = 4.0). The average reflects a grade close to a B minus.
efficient in excess of 0.8 or 0.9 (Judge et al. 1988: 868–869). While this does not rule out more complex interrelationships, all simple correlation coefficients in these data are below that benchmark.

Table 3 shows the mean values of the model variables for the quartiles of the percentage of capitated and PCCM managed care enrollment in the states. The relationship between variables is likely more complex than these simple comparisons reveal, thus some caution should be applied to interpretation. For some variables the predicted relationship is clear. For example, states in the two highest quartiles of capitated managed care enrollment tend, on average, to have higher ratios (1.70 and 1.59) of Medicaid inpatient hospital to state inpatient hospital expenditures per capita. Similar patterns are apparent for hospital beds per capita, Medicaid recipients per capita, the growth rate in expenditures, the tax price, and the percentage of the population living in nonmetropolitan areas. Other variables show a more random pattern. The percentage of adult AFDC Medicaid recipients, for example, shows a comparatively high average (25.81) in the highest quartile but a much lower value (14.07) in the third quartile.

Empirical Results

The regression results for the capitated managed care and PCCM enrollment equations are shown in table 4. The results of the overall managed care enrollment equation (last column) are included solely for the purpose of showing how the potentially conflicting influences net out concerning their impact and will not be discussed further. Also, to conserve space, the regression coefficients associated with the state-specific dummy variables are omitted but are available upon request.

Capitated Managed Care Enrollment

The results provide strong evidence for the influence of the political environment. The percentage of Democrats in the legislature is associated with a statistically significant and negative influence on capitated managed care enrollment of Medicaid beneficiaries.

Competition between the two major political parties also plays a statistically significant role. The more evenly a state legislature is divided between the two main political parties, the higher the likelihood of enrollment of Medicaid beneficiaries in capitated managed care plans. The impact of competition between the political parties implies that contain-
Table 3  Means of Model Variables by Quartile and Type of Managed Care for 1997

<table>
<thead>
<tr>
<th></th>
<th>Primary Care Case Management Enrollment</th>
<th>Capitated Care Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Quartile</td>
<td>Quartile</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Percentage of Legislators Who Are Democrats</td>
<td>37.71</td>
<td>36.35</td>
</tr>
<tr>
<td>Interparty Competition Index</td>
<td>0.32</td>
<td>0.33</td>
</tr>
<tr>
<td>Per Capita Hospital Beds</td>
<td>3.87</td>
<td>3.41</td>
</tr>
<tr>
<td>Percentage of Public Hospitals</td>
<td>32.63</td>
<td>24.49</td>
</tr>
<tr>
<td>Specialist to General Practitioner Ratio</td>
<td>1.64</td>
<td>2.46</td>
</tr>
<tr>
<td>Percentage Unionized Labor Force</td>
<td>8.98</td>
<td>12.84</td>
</tr>
<tr>
<td>Medicaid Recipients Per Capita</td>
<td>13.28</td>
<td>13.08</td>
</tr>
<tr>
<td>Medicaid Inpatient Hospital to State Hospital Expenditures Per Capita</td>
<td>1.15</td>
<td>1.38</td>
</tr>
<tr>
<td>Percentage (Previous Year) Growth Rate in Medicaid Expenditures</td>
<td>-0.45</td>
<td>-0.31</td>
</tr>
<tr>
<td>Tax Price (1 – Federal Medical Assistance Percentage)</td>
<td>33.27</td>
<td>41.22</td>
</tr>
<tr>
<td>Percentage of Adult AFDC Medicaid Recipients</td>
<td>17.52</td>
<td>17.23</td>
</tr>
<tr>
<td>Percentage of Medicaid Recipients Aged Twenty-One or Less</td>
<td>46.22</td>
<td>48.96</td>
</tr>
<tr>
<td>Years since Managed Care Enrollment Began</td>
<td>5.08</td>
<td>7.38</td>
</tr>
<tr>
<td>Percentage of the Population Living in Nonmetropolitan Areas</td>
<td>44.64</td>
<td>36.51</td>
</tr>
<tr>
<td>Table 4  Tobit Regression Coefficients</td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------------------------------------------</td>
<td>-----------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Capitated Managed Care Enrollment</td>
<td>Primary Care Management Enrollment</td>
<td>Overall Managed Care Enrollment</td>
</tr>
<tr>
<td>Percentage of Legislators Who Are Democrats</td>
<td>–0.00334**</td>
<td>–0.00034</td>
</tr>
<tr>
<td></td>
<td>(–2.762)</td>
<td>(–0.668)</td>
</tr>
<tr>
<td>Interparty Competition Index</td>
<td>0.82463**</td>
<td>–0.34456**</td>
</tr>
<tr>
<td></td>
<td>(2.780)</td>
<td>(–2.745)</td>
</tr>
<tr>
<td>Per Capita Hospital Beds</td>
<td>–0.05339</td>
<td>–0.07394**</td>
</tr>
<tr>
<td></td>
<td>(–1.045)</td>
<td>(–3.309)</td>
</tr>
<tr>
<td>Percentage of Public Hospitals</td>
<td>0.00156</td>
<td>0.00435</td>
</tr>
<tr>
<td></td>
<td>(0.127)</td>
<td>(0.980)</td>
</tr>
<tr>
<td>Specialist to General Practitioner Ratio</td>
<td>–0.07448</td>
<td>0.43303**</td>
</tr>
<tr>
<td></td>
<td>(–0.585)</td>
<td>(3.841)</td>
</tr>
<tr>
<td>Percentage Unionized Labor Force</td>
<td>–0.08017**</td>
<td>–0.02442**</td>
</tr>
<tr>
<td></td>
<td>(–4.357)</td>
<td>(–2.426)</td>
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<tr>
<td>Medicaid Recipients Per Capita</td>
<td>–0.02330**</td>
<td>–0.02732**</td>
</tr>
<tr>
<td></td>
<td>(–1.968)</td>
<td>(–3.150)</td>
</tr>
<tr>
<td>Ratio of Medicaid Inpatient Hospital and State Hospital Expenditures Per Capita</td>
<td>0.12661</td>
<td>–0.05280</td>
</tr>
<tr>
<td></td>
<td>(1.514)</td>
<td>(–1.329)</td>
</tr>
<tr>
<td>Relative Budget Deficit</td>
<td>0.00126</td>
<td>–0.00137</td>
</tr>
<tr>
<td></td>
<td>(0.498)</td>
<td>(–0.992)</td>
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<tr>
<td>Percentage (Previous Year) Growth Rate in Medicaid Expenditures</td>
<td>0.37768**</td>
<td>0.20094*</td>
</tr>
<tr>
<td></td>
<td>(1.985)</td>
<td>(1.769)</td>
</tr>
<tr>
<td>Tax Price (1 - Federal Medical Assistance Percentage)</td>
<td>0.01984*</td>
<td>–0.00169</td>
</tr>
<tr>
<td></td>
<td>(1.738)</td>
<td>(–0.412)</td>
</tr>
<tr>
<td>Percentage of Adult AFDC Medicaid Recipients</td>
<td>0.02172**</td>
<td>0.00938**</td>
</tr>
<tr>
<td></td>
<td>(7.122)</td>
<td>(3.452)</td>
</tr>
<tr>
<td>Percentage of Medicaid Recipients Aged Twenty-One or Less</td>
<td>–0.00660*</td>
<td>0.00428*</td>
</tr>
<tr>
<td></td>
<td>(–1.794)</td>
<td>(1.651)</td>
</tr>
<tr>
<td>Years since Managed Care Enrollment Began</td>
<td>0.05814**</td>
<td>–0.01770</td>
</tr>
<tr>
<td></td>
<td>(2.670)</td>
<td>(–1.430)</td>
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<tr>
<td>Percentage of the Population Living in Nonmetropolitan Areas</td>
<td>0.00440</td>
<td>–0.00870</td>
</tr>
<tr>
<td></td>
<td>(0.383)</td>
<td>(–1.525)</td>
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<tr>
<td>Percentage of the Private Population Enrolled in a Health Maintenance Organization</td>
<td>0.00487</td>
<td>0.00028</td>
</tr>
<tr>
<td></td>
<td>(0.915)</td>
<td>(0.998)</td>
</tr>
<tr>
<td>Intercept and State Fixed Effects</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

* Statistically significant at (α = 0.10)
** Statistically significant at (α = 0.05) or (α = 0.01)
ing the cost of the Medicaid program, and consequently, the transfer in income it represents is perceived as the preference of the median voter.

None of the provider-group variables (per capita hospital beds, the percentage of public hospitals, and the ratio of specialists to general practitioners) has a significant impact on the percentage of capitated Medicaid managed care enrollment. In contrast, the percentage of the labor force that is represented by labor unions has a highly significant impact on capitated Medicaid managed care enrollment. Labor unions’ efforts to curb capitated managed care for fear of lost jobs appear to have been successful. States in which labor-union representation is 10 percent above the average have approximately 0.8 percent lower capitated Medicaid managed care enrollment, holding all other factors constant. The number of Medicaid recipients per capita is also associated with significantly lower managed care enrollment; however, the magnitude of the estimated coefficient is approximately three times smaller than that of the labor-union variable. This group was hypothesized to oppose managed care enrollment for concerns that it could affect access to care.

The next group of variables in the model pertains to legislative budget pressures and median voter preferences. The cost of Medicaid inpatient services relative to overall state hospital costs per capita has the predicted positive coefficient but is not statistically significant at the 5 percent level. The relative budget deficit also does not have a statistically significant impact in this equation. In contrast, states with a higher tax price or growth rate in Medicaid expenditures during the previous year have significantly higher capitated managed care enrollment. A 10 percent growth rate in expenditures during the previous year is associated with an average increase in Medicaid capitated managed care enrollment of over 32 percent.

The larger the percentage of Medicaid recipients classified as AFDC adults, the higher capitated managed care enrollment. The magnitude of the influence of this variable is comparatively low. This is likely the result of the relatively small size of this group of beneficiaries. Nationally, AFDC adults accounted for less than 10 percent of the Medicaid beneficiary population in 1997. In contrast, the larger the proportion of Medicaid recipients who are children, the smaller the percentage of beneficiaries enrolled in capitated managed care plans.

The last group of variables in the model relates to logistical concerns. As expected, the number of years since the state implemented its managed care program has a statistically significant and positive influence on enrollment. The percentage of the population living in nonmetropolitan
areas is not statistically significant. The lack of significance of this variable may be because of the lack of variation in this variable over time and the multicollinearity that exists between it and the state fixed effects. The same holds for the percentage of the state population enrolled in an HMO.

Enrollment in Primary Care Case Management Programs

In contrast to its strong negative influence on capitated managed care enrollment, the percentage of the legislature composed of Democrats does not have a significant impact on PCCM enrollment. However, the IPC has a strong negative influence on PCCM enrollment.

In contrast to the capitated managed care equation, provider variables have a significant influence on enrollment of beneficiaries in PCCM programs. The per capita hospital beds variable has a significant negative influence on enrollment. Similarly, the recipient population variable has a negative influence on enrollment. The percentage of the labor force that is unionized also has a significant negative influence on PCCM enrollment. A 10 percent rise, at the mean, in the representation of the recipient and labor-union groups is associated with, respectively, 2.4 and 2.3 percent declines in PCCM enrollment. By comparison, the ratio of specialists to general practitioners has a strong positive influence on PCCM enrollment. The relative influence of this last variable is apparent both in terms of the statistical significance and the magnitude of the estimated coefficient. An increase of 0.1 in the ratio of specialists to general practitioners (the average in 1997 was 2.41) is associated with a rise of 0.04 percent in PCCM enrollment. It is noteworthy that the influence of this variable was negative, although not statistically significant, in the capitated managed care equation.

The percentage growth rate of Medicaid expenditures during the previous year is the only variable measuring budget pressures with a significant influence on PCCM enrollment, albeit only at the 10 percent level of alpha. The other variables in this category are the ratio of Medicaid inpatient hospital and state hospital expenditures per capita, the tax price, and the relative budget deficit. The influence of the composition of the beneficiary population is maintained in this equation. The larger the percentage of the Medicaid population classified as adult AFDC, the higher the percentage enrollment in PCCM. Also, holding all else constant, states with higher percentages of recipients under age twenty-one have higher enrollment in PCCM programs. However, this variable is not statistically significant.
The number of years since managed care enrollment in PCCM began does not significantly influence enrollment. This is probably the result of states starting such programs and subsequently switching to different forms of managed care during the study period. Finally, neither the percentage of the population living in nonmetropolitan areas nor the percentage of the state population enrolled in an HMO has a significant impact on enrollment in PCCM programs. Similar to the capitated managed care equation, it is likely the result of potential multicollinearity that exists between these variables and the state fixed effects.

Discussion and Implications

The objective of this article is to investigate the factors that determine the enrollment of Medicaid recipients in managed care plans. The analysis distinguishes between capitated managed care and FFS PCCM to examine the differential behavior of model variables and gain some insight into the political calculus underlying the decision to implement new approaches in public health programs. The model variables are divided into four groups, including (1) political-environment variables, (2) program-cost and public-interest variables, (3) special interest–group variables, and (4) logistical considerations. Did Medicaid managed care enrollment increase or stagnate in individual states because of popular demand for cost containment? Did the change come about because of special interests or was it a matter of logistical considerations relating to implementation?

The empirical results indicate quite distinct behavior of the model variables as applied to capitated versus FFS PCCM enrollment. The results provide strong evidence that Democratic legislators oppose capitated managed care enrollment while their influence is neutral regarding the FFS approach; this is likely because FFS emphasizes long-term health outcomes through better access and continuity of care and managed care enrollment concentrates more on financial incentives directed at provider behavior. The differential is more marked in the case of the IPC variable, which is associated with significantly increased enrollment in capitated programs but decreased enrollment in FFS-based PCCM plans. This IPC variable was hypothesized to be positive in the capitated managed care equation under the assumption that the median voter has a strong preference for cost containment. Accordingly, because FFS PCCM programs are not expected to generate immediate and significant savings, the negative coefficient in the second equation is not surprising. The magnitude of the influence of this variable, in absolute terms, is approximately 40
percent compared to the capitated managed care equation. To the extent these variables capture the median voter’s preferences, this result appears to indicate that they are an important factor in the political motivations underlying decisions concerning Medicaid managed care enrollment.

The program-cost and public-interest variables also behave distinctly differently between the capitated and PCCM managed care enrollment equations. The most striking difference is in the influence of the tax-price and growth-rate variables (appendix B, appendix figures B1, B2, B3). Enrollment in fully capitated managed care plans is significantly higher in states facing a relatively greater tax price. In contrast, tax price does not play a statistically significant role in the case of enrollment in PCCM plans. The percentage growth rate in expenditures also helps explain capitated managed care enrollment but becomes only marginally significant in the PCCM equation. Moreover, the magnitude of the estimated coefficient is substantially larger in the equation for fully capitated managed care. Understandably, states experiencing greater budget pressures due to higher outlays per recipient or tax prices would favor capitated managed care over FFS plans, since the former is expected to generate greater and faster results.

We also find significant differential evidence of influence by special interest groups. Labor unions and the recipient population itself were found to be influential both in the case of capitated and FFS types of managed care. However, the influence of labor unions is significantly more pronounced, both in terms of magnitude and statistical significance, in the capitated managed care model. The more immediate and stronger expected impact of capitated managed care principles compared to PCCM models on the financial well-being of individual hospitals and, consequently, the professional labor force is most likely responsible for this differential.

Surprisingly, the recipient group appears to be equally opposed to PCCM and capitated managed care enrollment. Fears of restrictions stemming from gatekeepers’ financial incentives may explain this finding. However, the influence of hospital and physician groups appears to be focused on FFS-based PCCM programs. These results may indicate concerns relating to potentially adverse effects of built-in incentives for case managers to reduce utilization particularly of inpatient services. The lack of significance of the provider variables in the capitated enrollment equation, particularly relating to the physician group, may result from a host of factors, which are discussed in appendix A. Furthermore, high per capita hospital beds and/or specialists may imply the establishment of provider
networks, indicating lower costs of initiating managed care, which would counteract the influence of the interest-group element of these variables.

The division of the beneficiary population into AFDC and non-AFDC adults is also important, because it indicates that the ease of implementation is a significant determinant. The results also indicate that the tastes and preferences of voters regarding public health for children play a significant role. Again there are differences between the equations for capitated managed care and PCCM. The percentage of AFDC adults is a stronger predictor in the capitated managed care enrollment equation both in terms of magnitude and level of significance. Similarly, the percentage of Medicaid recipients aged twenty-one and under is highly significant in the capitated managed care equation but is not statistically significant in the PCCM enrollment model.

To the extent that enrollment of the Medicaid-eligible population in managed care plans differentially impacts the services and expenditures of the program, one can expect discrepancies in the treatment of recipients across state borders. The public-interest variables, measuring the states’ willingness and ability to pay for public services, and the median voter variables, measuring voter preferences, are generally significant. Thus, one could argue that, on one hand, the public interest is being served to some extent. On the other hand, managed care enrollment of Medicaid beneficiaries across the states also varies depending on the relative strength of interest groups.

The results also show how Medicaid recipients might fare under different financing arrangements between the federal government and states. Rising budget pressures have reopened the debate concerning federal matching grants (the existing federal medical assistance percentage [FMAP] arrangement) and alternatives such as block grants or fixed (capped) budgets. These alternatives were proposed by President Bush in January 2003 and would give states a higher degree of flexibility. Standard economic theory using indifference curves may provide some insight. Figure 1 depicts a standard set of budget \( B_i \) constraints and indifference curves \( IC_i \) to illustrate a state’s choice between the provision of Medicaid \( M \) and other public services \( X \). A state with an original budget of \( B_1 \) and indifference curve \( IC_1 \) will provide \( M_1 \) units of Medicaid services and \( X_1 \) units of other public services (point a). Assuming a FMAP of 50 percent, acting as a decrease in the price of Medicaid services, the budget line rotates to \( B_2 \) allowing the state to reach \( IC_2 \), thus increasing Medicaid services to \( M_2 \) while, at the same time, allowing the state to increase spending on other services to \( X_2 \) (point b).
The dynamics are substantially different under a block grant approach. Starting from the original budget, $B_1$, a block grant acts as an increase in income causing a parallel shift to $B_3$. Budget line $B_3$ runs through point $(M_2, X_2)$ to allow states to purchase the existing amount of Medicaid services under the matching grant system. However, with $B_3$ states can reach a higher indifference curve, $IC_3$, indicating a new optimal allocation of $M_3$ and $X_3$ (point c). This may be optimal from an efficiency standpoint, but it is a clearly negative development for Medicaid beneficiaries.

The results in this article indicate that the size of the reduction from $M_2$ to $M_3$ will depend on the strengths and interactions of interest groups, taxpayer preferences, budget pressures, and the composition of state legislatures, all of which determine the shape of the indifference curves. For example, holding all other factors constant, Medicaid beneficiaries as a group would fare relatively better, with respect to access and quality of services, in states with strong Democratic representation or lower budget pressures.
Equitable treatment of the poor across states is not part of Medicaid’s objective; indeed, the program’s structure and alternative financing arrangements between the federal government and the states do not promote equitable treatment. States are not neutral in this regard. Within broad federal outlines, states establish eligibility standards; determine the type, amount, duration, and scope of services; set the rate of payment for services; and administer their own programs. The results illustrate the extent to which specific factors determine the composition of state managed care enrollment programs. It is reasonable to believe that the variables investigated here affect not only managed care enrollment but also other service-specific cost-containment policies and, consequently, equity, quality, and access to services rendered to the Medicaid-eligible population.
Appendix A: Discussion of Control Variables

Program Cost Variables

Large budget deficits, relative to general state expenditures, and high growth rates in program costs may translate into pressure to reduce spending on publicly funded programs. Following Cone and Dranove (1986: 296) I use the relative budget deficit as a proxy for the “marginal political cost of increasing transfers from taxpayers to other interest groups,” such as Medicaid recipients. As the authors point out, this is, admittedly, not an ideal proxy. Theory suggests that larger relative deficits should relate positively to a state’s willingness to seek out cost-saving approaches to Medicaid services. Similarly, the price to the taxpayer is expected to affect a state’s willingness to pay for Medicaid services and is measured as 100 percent minus the FMAP. A higher tax price is expected to translate into larger incentives to adopt alternative payment systems to reduce costs.

The cost per Medicaid recipient takes on additional importance because Medicaid managed care capitation rates are linked to the FFS experience. Medicaid managed care capitation rates must be high enough to attract commercial participants to take over functions that otherwise must be fulfilled by safety-net plans. Because rates, including relatively high hospital rates and higher-than-average use of hospital and emergency-room services, were computed from the FFS experience, Medicaid managed care enrollees, at least initially, appeared attractive to commercial MCOs (Holahan, Evans, and Zuckerman 1998; Fossett 1998; Hurley and Freund 1988). However, Medicaid rate levels have historically been relatively low compared to the private sector. Indeed, this has made it difficult for states to attract mainstream organizations to participate in the program. Nonetheless, states with historically and relatively more attractive rates should find it easier to attract commercial MCOs into their program.

13. This is true whether capitation rates are derived through negotiation, competitive bidding, or administrative decision. Prior conceptions of managed care led states to expect immediate savings from this approach. New York City, for example, formulated that HMOs would be paid 95 percent of the average annual per capita cost to Medicaid, implying direct savings of 5 percent through the use of managed care (Ginzberg, Berliner, and Ostow 1997). The general perception among states is that rates could be set as low as 90 percent of fee-for-service (FFS) rates. For a more detailed description of rate setting for specific states, please refer to Holahan, Evans, and Zuckerman (1998). The authors provide details regarding capitated rate setting in Minnesota, Michigan, Massachusetts, New York, Washington State, and Texas. Ku and Hoag (1998) provide some details of managed care programs and rate settings for Hawaii, Oklahoma, Rhode Island, and Tennessee.
States that had high inpatient hospital expenditures were in a better position to achieve savings from investments in managed care and enrollment of beneficiaries in MCOs. The proxy for the relative attractiveness of the Medicaid program to commercial MCOs and the states’ incentive to seek alternative methods is hospital expenditure per Medicaid inpatient recipient relative to overall state per capita expenditures on inpatient hospital services.

The Beneficiary Population

Based on size and expenditures, Medicaid beneficiaries comprise three major and several smaller groups. The three major groups consist of individuals who become eligible (1) through the AFDC program, (2) as recipients of Supplemental Security Income, and (3) as medically needy. For various reasons, including deservingness and the relative political power of specific groups, states have been more likely to switch to a risk-based managed care approach for their AFDC recipients. Furthermore, compared to the remaining Medicaid cohorts, AFDC recipients, consisting mostly of women and children seeking preventive and acute medical care, most closely resemble the privately enrolled risk-based managed care population. Among other factors, this experience makes it easier to calculate in advance the average cost of providing care to this cohort. The similarities apply to demographics, urban geographic location, and types of services used, thus greatly facilitating their integra-

14. We use inpatient hospital expenditures per recipient and not overall Medicaid expenditures per recipient to measure the relative generosity of the program. Fossett (1998) points out that high-benefit states historically had higher than average inpatient hospital rates but low physician fees. Based on this finding, I use the former. It is noteworthy that the level of inpatient hospital expenditures may reflect the vertical integration of hospitals as well as the program’s generosity.

15. From an ideological viewpoint, “deservingness” comes to the foreground considering the AFDC-welfare link. Grogan (1997) and Kronebusch (1997) provide a more detailed discussion of this sentiment. Consequently, legislators tend to be less reluctant to experiment with the structure of the Medicaid program as it concerns AFDC recipients (Grogan 1997; Beamer 1999; Sparer 1996; Hurley and Freund 1988; Holahan, Evans, and Zuckerman 1998; Fossett and Thompson 1999; Daniels 1998). Moreover, managed care principles are believed by some to provide a solution to the improper use of the FFS system by AFDC recipients (Grogan 1997; Ginzberg, Berliner, and Ostow 1997). Forcing recipients first to select a participating managed care organization (MCO), assuming a choice exists, and second to select a primary care provider within that organization implies a level of personal responsibility absent in the FFS system. Proponents of managed care enrollment argue that inappropriate use of high-cost emergency-room services should decline as a direct result.
tion into such plans (Grogan 1997; Sparer 1996; Ginzberg, Berliner, and Ostow 1997; DiIulio and Nathan 1998; Fossett 1998; Hurley and Freund 1988; Holahan, Evans, and Zuckerman 1998; Fossett and Thompson 1999). They are generally younger and healthier and, therefore, the least expensive of the three major groups. Other factors that make enrollment of AFDC recipients in MCOs easier include their low use of nonmedical services, such as nursing homes and mental-health facilities, their geographic concentration, and their relatively low political power.

It is noteworthy that, because the AFDC populations are healthier and require relatively fewer resources, the proportion of Medicaid expenditures devoted to this cohort is comparatively small. In 1997, the percentage of total expenditures devoted to children and adults was 24.48 even though they accounted for 63.28 percent of the population (HCFA 1991 – 1997a). Therefore, the potential for savings from new delivery approaches for this group will also be low.

Furthermore, the average individual Medicaid eligibility episode, particularly as it relates to the AFDC population, lasts only a few months to a year (Kronebusch 1997). This transitory element of eligibility greatly hinders the effectiveness of managed care, which relies on continuity of care to generate long-term savings (Hurley and Freund 1988), while adding to administrative costs in the short run.

In contrast, technical, administrative, and political obstacles involved with caring for the non-AFDC special-needs—eligible cohorts (e.g., aged, blind, and disabled) has severely inhibited enrollment of these groups in managed care (Grogan 1997; Fossett and Thompson 1999; Sparer 1996; DiIulio and Nathan 1998; Boyd 1998; Fossett 1998; Hackey 2000; Hurley and Freund 1988; Holahan, Evans, and Zuckerman 1998; Kronick and Dreyfus 1998). The obstacles are multifaceted and make effective management of the health care services utilized by these groups difficult. Members of these groups are generally more heterogeneous, exhibit a wider array of medical needs, and are more geographically dispersed.

Other characteristics that make managed care enrollment of non-AFDC groups difficult include the fact that many are financed by a variety of sources, including Medicaid and Medicare, and they require substantially more services from specialized providers in institutional settings (e.g., mental health facilities and nursing homes). Furthermore, these groups enjoy better organized advocacy and provider groups and, therefore, tend to be better represented politically, allowing them to more effectively oppose managed care policies deemed unfavorable (Fossett 1998; Fossett and Thompson 1999). All these difficulties, combined with the fact that
commercial HMOs have had very little experience with these cohorts, have resulted in relatively low and slow enrollment of this segment of the eligible population.

At the same time, because providing health care for these groups, particularly the persistently mentally ill, is substantially more expensive, cost-containment potential is larger. The elderly, blind, and disabled claimed approximately 75 percent of Medicaid expenses while accounting for only 29 percent of the population in 1997 (HCFA 1991–1997a). Furthermore, these populations generally enjoy more stable eligibility, a characteristic that is crucial for the ability of managed care to generate long-term savings. Therefore, despite the difficulties, some states, most notably Arizona, Oregon, and Tennessee, have begun to experiment with enrollment of these non-AFDC groups (Ginzberg, Berliner, and Ostow 1997; Kronick and Dreyfus 1998). The implementation of managed care for these groups will likely differ from the “easier” AFDC populations to include risk adjustment, payment of higher premiums, and special carve outs (Holahan, Evans, and Zuckerman 1998; Fossett and Thompson 1999). Enrollment also tends to be voluntary and not fully capitated (Fossett and Thompson 1999). 16

To account for the influence of the composition of the beneficiary population, the percentage of children (aged twenty-one or less) and the percentage of adult AFDC Medicaid recipients are included in the model. The special-needs populations serve as the control group in this regard.

Interest Groups

Each group’s influence on Medicaid managed care enrollment is the result of a complex structure of arguments that enter that group’s utility function. The following extracts only the most prominent of these arguments based on economic theory and hypothesizes the most likely disposition of each group.

16. Since the last year of this study (1997), states have favored mandatory enrollment programs. However, several states also maintain relatively small, voluntary-enrollment programs for their special-needs populations. Following are some example of voluntary enrollment programs described by the Center for Medicare and Medicaid Services (2005). In California, the Sacramento Geographic Managed Care plan offers dental services to certain cohorts, including the blind, disabled, elderly, and foster children. Colorado maintains a voluntary enrollment plan for individuals with mental illnesses; the plan is available to pregnant women, Medicare dual eligibles, and special-needs children. Small voluntary plans, mostly for special-needs populations, are also available in Florida, Idaho, Indiana, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Texas, Washington, and West Virginia.
Hospitals have traditionally favored retrospective cost-based payment mechanisms and can be expected to oppose any legislation directed at limiting reimbursements for their services (Hackey 2000). Also, hospitals generally have sicker and costlier patients than other providers and may not fare well under a capitated payment system (Sparer and Brown 2000). In the absence of data on political contributions made by hospitals, I measure the strength of the hospital group in terms of the size of the industry, approximated by the number of hospital beds per capita. While this measure has been used frequently in the empirical literature (Meier 1987; Salamon and Siegfried 1977; Kiholm-Smith 1982a, 1982b; Lipford and Yandle 1987; Graddy and Nichol 1989), it admittedly relies solely on representation in numbers and does not capture the full complexity of groups’ political prowess.

Not all hospitals are affected equally by changes in the Medicaid program. Public hospitals and academic health centers tend to serve a larger proportion of Medicaid recipients than do privately owned institutions (Mitchell and Norton 1996) and rely more heavily on Medicaid funds. Consequently, from the point of view of these types of institutions, the impact of changes in the Medicaid program can be extensive. An emphasis on managed care could mean significant reductions in an important source of funds (Sparer 1996; Grogan and Gusmano 1999; Sparer and Brown 2000). Furthermore, as some analysts have pointed out, Medicaid-eligible individuals who do not receive their care in an efficient and timely manner from MCOs may be forced to seek necessary services elsewhere. The most likely venue would be the safety-net providers, including public hospitals and community health centers, triggering an increase in uncompensated care at these sites (Holahan, Evans, and Zuckerman 1998). All this suggests that public hospitals are more heavily influenced by changes in the Medicaid program. To account for the difference, the percentage of hospitals that are publicly owned is included in the model.

Physician attitudes toward managed care are dictated by expectations of a loss of control in the decision-making process regarding appropriateness and extent of treatments (Luft 1999), potential loss of income, increased administrative burden, and decreased patient interaction. While the formal evidence regarding physician reaction to managed care is ambiguous, it clearly shows that physicians are more dissatisfied now than in the past.

17. For example, in 1991, nearly 75 percent of the patient population served by urban public hospitals was composed of Medicaid beneficiaries and the uninsured, while privately insured patients made up only 12 percent (Sparer 1998).
(Gold 1999). Many physicians have embraced or at least accepted managed care, but others, particularly solo practitioners and specialists, fear that it could cause a loss of income (Simon, Dranove, and White 1998; Enthoven 1999).

Assessing the influence of this group on Medicaid managed care enrollment policy is difficult for several reasons. First, physicians decide on an individual basis whether or not to participate in the Medicaid program. In New York City, for example, only 15 percent of physicians participated in the program toward the end of our study period (Ginzberg, Berliner, and Ostow 1997). Second, physicians tend to practice in areas that have relatively few Medicaid recipients. Third, physicians who participate in the program generally devote only a small part of their business to Medicaid recipients. Finally, although the American Medical Association (AMA) fiercely contested prepaid care for decades, the organization has “softened” its opposition in recent years (Ohsfeldt 1988).

All this suggests that physicians as a group may be ambiguous toward changes in Medicaid managed care. However, there may be differences within the profession. There is ample evidence that managed care affects medical specialists and general practitioners differently (Simon, Dranove, and White 1998). While the former tend to experience a reduction in the demand for their services and consequently a decrease in their incomes as a result of managed care enrollment, the latter may be affected positively. Therefore, I include the ratio of medical specialists to general practitioners in the model. A higher ratio is assumed to relate positively to more intense lobbying efforts by the medical profession (Mueller 1986; Pracht and Moore 2003). Specialists are hypothesized to oppose capitated forms of managed care. Before proceeding, it should be pointed out that, to the extent that physicians and hospitals provide services directly through MCOs, either as employees or as partners of the organization, their opposition or support for managed care enrollment may be diminished.

Labor unions form another group that has had an interest in the advancement of managed care. These organizations were concerned that nonprofessional health care workers would be the first to be hurt if managed care were to affect the hospital sector negatively. These concerns are especially relevant in the public hospital system, in which targeted workforce reductions have already encountered opposition from physicians and labor unions (Sparer 1998). By opposing managed care principles

18. Sparer (1998) also points out more serious constraints relating to city political and bureaucratic environments. A more detailed discussion of these forces is beyond the scope of this article.
overall, labor unions may indirectly affect Medicaid managed care enrollment. Larger union membership rates are assumed to relate positively to the group’s lobbying efforts.

Managed care, particularly when capitated, could significantly reduce the resources, such as time and elective diagnostic testing, devoted per medical case. Furthermore, sufficiently low capitation rates will make Medicaid patients a liability that providers will attempt to avoid, resulting in fewer recipients served. In the case of direct utilization controls, such as a requirement of prior authorization, the evidence indicates a reduction in the absolute number of recipients (Zuckerman 1987). Recipients and associated advocacy groups are therefore expected to oppose alternative reimbursement and cost-containment policies.

The large expansions in Medicaid eligibility during the late 1980s suggest these groups have some political influence. However, Medicaid beneficiaries generally belong to lower income groups possessing neither the resources nor the disposition for political organization (Kronebusch 1997). Legislators can afford to ignore the interests of these groups in the decision-making process. Furthermore, the Medicaid-recipient population and expenditures are positively related. Consequently, a larger recipient population may imply increased budget pressures, increasing the likelihood of cost-containment efforts. The net outcome of these opposing forces can only be assessed empirically. The number of recipients per capita is used to capture the influence of this group.

It is noteworthy that the variable defined as the percentage of Democrats included in the model likely also reflects the activity and political power of recipient advocacy groups. These groups tend to be relatively liberal, making their support for Democrats in the legislature likely.

Providers’ financial incentives and freedom to prescribe tests and treatments are likely to be more restricted under a capitated HMO approach compared to a PCCM program. Therefore, physician, hospital, recipient, and organized labor groups were all hypothesized to oppose capitated managed care enrollment. Primary care case management programs are primarily FFS based and do not adversely impact reimbursement rates of participating providers. They are affected only to the extent they take on an additional administrative burden associated with care-management duties for which they receive a nominal fee per enrollee per month. It

19. Participation is limited to providers who are capable of delivering primary care, including individual physicians, physician groups offering primary care, health centers, outpatient clinics, or HMOs.
should be noted that the per enrollee fee at least partially offsets any cost savings from PCCM programs. However, the above suggests that physician groups should prefer PCCM programs to other, more restrictive, forms of managed care.

There is, however, a potential downside of PCCM for nonprimary care providers. Besides providing primary care services, the case manager is responsible for brokering and/or authorizing services by other providers (e.g., specialist referrals, hospitalizations, and emergency-room visits). Some programs offer primary care case managers financial incentives based on reductions of utilization in some service areas (e.g., expensive hospitalizations and emergency-room visits). In effect, access to nonprimary care services under these circumstances may be restricted. Hospitals and recipients, in particular, and labor unions, to some extent, are expected to oppose this characteristic.
Appendix B:  
Sensitivity Analysis and Supporting Statistics

To determine the sensitivity of the coefficient estimates to the fixed-effects specification, the model was executed separately with regional effects instead. The results are shown in table B1. As expected, the magnitudes and sometimes the significance of the coefficient estimates are affected by the specification. In the capitated managed care equation, the percentage of the labor force that is unionized, the tax price, the percentage of the legislature composed of Democrats, and the IPC become statistically insignificant. In contrast, the percentage of Medicaid recipients under twenty-one years of age and the percentage of the private population enrolled in an HMO increase in significance. The ratio of Medicaid inpatient hospital and state hospital expenditures per capita is associated with the most significant change, going from positive and not significant to negative and significant.

In the PCCM equation, the percentage of public hospitals, the tax price, the number of years since enrollment started, the percentage of the population living in nonmetropolitan areas, and the percentage of the private population enrolled in an HMO become statistically significant in the alternative specification. This verifies the suspected multicollinearity between the latter two variables and the fixed effects. The number of Medicaid recipients per capita and the percentages of the adult AFDC Medicaid recipients and children are not statistically significant in this specification.

The Pacific states tend to have higher capitated managed care enrollment, likely resulting from a well-established managed care industry in those states, particularly California, Oregon, and Washington. The reverse is true for PCCM enrollment, which is significantly higher in the Southern, Midwestern, and mountain states. This is as expected given the relatively rural nature of these states.

Figures B1, B2, and B3 provide some indication of the hypothesized relationships between states’ enrollment of Medicaid beneficiaries in capitated managed care plans and the three most significant program-cost and public-interest variables. A general trend line is included for perspective. One should apply caution in interpreting these plots, as they are descriptive and do not reflect the full nature of relationships that are likely more complex. Table B2 provides a correlation matrix for explanatory variables used in regression models.
### Table B1 Tobit Regression Coefficients

<table>
<thead>
<tr>
<th>Variable</th>
<th>Capitated Managed Care Enrollment</th>
<th>Primary Care Case Management Enrollment</th>
<th>Overall Managed Care Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>0.50855</td>
<td>-0.19973</td>
<td>0.71564**</td>
</tr>
<tr>
<td></td>
<td>(1.173)</td>
<td>(-0.831)</td>
<td>(2.063)</td>
</tr>
<tr>
<td>Percentage of Legislators Who Are Democrats</td>
<td>-0.00123</td>
<td>0.00023</td>
<td>-0.00093</td>
</tr>
<tr>
<td></td>
<td>(-1.148)</td>
<td>(0.431)</td>
<td>(-1.144)</td>
</tr>
<tr>
<td>Interparty Competition Index</td>
<td>0.05528</td>
<td>-0.19829**</td>
<td>-0.07048</td>
</tr>
<tr>
<td></td>
<td>(0.228)</td>
<td>(-1.641)</td>
<td>(-0.392)</td>
</tr>
<tr>
<td>Per Capita Hospital Beds</td>
<td>-0.05868</td>
<td>0.00029</td>
<td>-0.04254</td>
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<tr>
<td></td>
<td>(-1.525)</td>
<td>(0.014)</td>
<td>(-1.447)</td>
</tr>
<tr>
<td>Percentage of Public Hospitals</td>
<td>-0.00041</td>
<td>-0.00303**</td>
<td>-0.00343**</td>
</tr>
<tr>
<td></td>
<td>(-0.203)</td>
<td>(-3.300)</td>
<td>(-2.383)</td>
</tr>
<tr>
<td>Specialist to General Practitioner Ratio</td>
<td>0.01798</td>
<td>0.04310**</td>
<td>0.06969**</td>
</tr>
<tr>
<td></td>
<td>(0.522)</td>
<td>(2.190)</td>
<td>(2.501)</td>
</tr>
<tr>
<td>Percentage Unionized Labor Force</td>
<td>-0.00179</td>
<td>-0.00856**</td>
<td>-0.00585</td>
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<tr>
<td></td>
<td>(-0.242)</td>
<td>(-2.277)</td>
<td>(-1.062)</td>
</tr>
<tr>
<td>Medicaid Recipients Per Capita</td>
<td>-0.01705**</td>
<td>-0.00496</td>
<td>-0.01585**</td>
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<tr>
<td></td>
<td>(-2.294)</td>
<td>(-1.167)</td>
<td>(-2.614)</td>
</tr>
<tr>
<td>Ratio of Medicaid Inpatient Hospital and State Hospital Expenditures Per Capita</td>
<td>-0.08647*</td>
<td>-0.01253</td>
<td>-0.08328**</td>
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<tr>
<td></td>
<td>(-1.771)</td>
<td>(-0.440)</td>
<td>(-2.113)</td>
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<td>Relative Budget Deficit</td>
<td>0.00412</td>
<td>0.00101</td>
<td>0.00275</td>
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<tr>
<td></td>
<td>(1.416)</td>
<td>(0.672)</td>
<td>(1.211)</td>
</tr>
<tr>
<td>Percentage (Previous Year) Growth Rate in Medicaid Expenditures</td>
<td>0.52499**</td>
<td>0.08515</td>
<td>0.59094**</td>
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<tr>
<td></td>
<td>(2.363)</td>
<td>(0.662)</td>
<td>(3.219)</td>
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<tr>
<td>Tax Price (1 - Federal Medical Assistance Percentage)</td>
<td>0.00212</td>
<td>-0.00590**</td>
<td>-0.00395</td>
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<td></td>
<td>(0.424)</td>
<td>(-2.281)</td>
<td>(-0.994)</td>
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<tr>
<td>Percentage of Adult AFDC Medicaid Recipients</td>
<td>0.02338**</td>
<td>0.00124</td>
<td>0.02190**</td>
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<tr>
<td></td>
<td>(7.226)</td>
<td>(0.643)</td>
<td>(8.018)</td>
</tr>
<tr>
<td>Percentage of Medicaid Recipients Aged Twenty-One or Less</td>
<td>-0.01039**</td>
<td>0.00282</td>
<td>-0.00872**</td>
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<tr>
<td></td>
<td>(-2.944)</td>
<td>(1.477)</td>
<td>(-3.105)</td>
</tr>
<tr>
<td>Years since Managed Care Enrollment Began</td>
<td>0.06197**</td>
<td>0.03945**</td>
<td>0.07502**</td>
</tr>
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<td></td>
<td>(5.031)</td>
<td>(5.649)</td>
<td>(7.690)</td>
</tr>
<tr>
<td>Percentage of the Population Living in Nonmetropolitan Areas</td>
<td>-0.00181</td>
<td>0.00479**</td>
<td>0.00307</td>
</tr>
<tr>
<td></td>
<td>(-0.670)</td>
<td>(3.513)</td>
<td>(1.536)</td>
</tr>
<tr>
<td>Percentage of the Private Population Enrolled in a Health Maintenance Organization</td>
<td>0.00628*</td>
<td>0.00414*</td>
<td>0.00361</td>
</tr>
<tr>
<td></td>
<td>(1.693)</td>
<td>(1.959)</td>
<td>(1.201)</td>
</tr>
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(continued)
Table B1  Tobit Regression Coefficients (continued)

<table>
<thead>
<tr>
<th>Census Divisions*</th>
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<th>Primary Care Case Management Enrollment</th>
<th>Overall Managed Care Enrollment</th>
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* Statistically significant at (α = 0.10)
** Statistically significant at (α = 0.05) or (α = 0.01)
* The Pacific census division (AK, CA, WA, OR, HI) serves as the control group
Figure B1  Plot of Percentage Enrollment in Capitated Managed Care Programs and the Average Growth Rate in Medicaid Expenditures

Figure B2  Plot of Percentage Enrollment in Capitated Managed Care Programs and Percentage of Aid to Families with Dependent Children (AFDC) Recipients
Figure B3  Plot of Percentage Enrollment in Capitated Managed Care Programs and States’ Tax Prices
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A. Per capita hospital beds  
B. Percentage of public hospitals  
C. Specialist to general practitioner ratio  
D. Percentage unionized labor force  
E. Medicaid recipients per capita  
F. Ratio of Medicaid inpatient hospital and state hospital expenditures per capita  
G. Percentage (previous year) growth rate in Medicaid expenditures  
H. Tax Price (1 - federal medical assistance percentage)  
I. Relative budget deficit  
J. Years since managed care enrollment began  
K. Percentage of adult AFDC Medicaid recipients  
L. Percentage of Medicaid recipients aged twenty-one or less  
M. Percentage population living in nonmetropolitan areas  
N. Percentage of private population enrolled in a health maintenance organization  
O. Percentage of legislators who are Democrats  
P. Interparty competition index
References


U.S. Department of Health and Human Services (HHS), Health Care Financing Administration, Office of Managed Care. 1996. *1996 National Summary of State Medicaid Managed Care Programs*. Washington, DC: HHS.


