The Effect of Medicaid Physician Fees on Take-up of Public Health Insurance among Children in Poverty

Youjin Hahn[*]

Aug 2011

Monash University

Abstract

I investigate how changes in fees paid to Medicaid physicians affect take-up among children in low-income families. The existing literature suggests that the low level of Medicaid fee payments to physicians reduces their willingness to see Medicaid patients, thus creating an access-to-care problem for these patients. For the identical service, current Medicaid reimbursement rates are only about 65% of those covered by Medicare. Increasing the relative payments of Medicaid would increase its perceived value, as it would provide better access to health care to Medicaid beneficiaries. Using variation in the timing of the changes in Medicaid payment across states, I find that increasing Medicaid generosity is associated with both an increase in take-up and a reduction in uninsured rate. These results provide a partial answer to the puzzling question of why many low-income children who are eligible for Medicaid remain uninsured.

JEL classification: I11, I18
Keywords: Medicaid; Take-up; Medicaid payment; Medicaid reimbursement, Access to care

[*] Department of Economics, Monash University, Clayton campus, Victoria 3800, Australia
youjin.hahn@monash.edu

1 Introduction

Medicaid was created in 1965 to provide virtually free public health insurance to low-income individuals in the United States. Although most children below the poverty line are eligible for public insurance through several federally mandated programs, the uninsured rate among this group has remained high, almost double that of children above the poverty line.[1] This puzzling phenomenon of 'eligible but not enrolled' under means-tested social insurance and transfer programs has motivated a good deal of research in identifying factors that affect take-up. The previous literature has proposed several explanations for why individuals do not participate in public programs even when they are eligible for benefits. Although the monetary costs of enrolling in Medicaid are almost zero as Medicaid entails virtually no out of pocket costs, individuals may face nonmonetary costs when they enroll in the public program. Stigma attached to public insurance and administrative hassles could also increase the cost of enrolling in public insurance (Remler et al., 2001). There are also informational barriers, particularly if potential enrollees have not used public programs before (Aizer, 2007; Kenney and Haley, 2001).

In this paper, I offer a new perspective on the take-up of Medicaid. The previous literature on the determinants of Medicaid take-up has largely focused on the cost of enrolling in public programs. The current study departs from the previous literature by focusing on how the value of Medicaid affects take-up. In particular, I examine the relationship between take-up and patient access to care, using the Medicaid-to-Medicare fee index as a proxy for access to care provided by Medicaid. Medicaid reimbursement levels for physicians have been historically low. As a result, physicians are not incentivized to treat Medicaid patients, which creates access-to-care problems for Medicaid patients. In fact, twenty percent of pediatricians in the United States do not see Medicaid patients at all and forty percent limit the number of Medicaid patients in their practice (Currie and Fahr, 2005). All else being equal, increasing the Medicaid payment to physicians would lead to a higher participation

[1] For example, the uninsured rate among poor children was 16% while the uninsured rate of children above the poverty line was 9%, according to March Current Population Survey data for year 2007.

rate among physicians. Past studies have both theoretically posited and empirically tested this positive relationship between Medicaid payment and physician participation (McGuire and Pauly, 1991; Perloff et al., 1995; Decker, 2007).

One valid conjecture then is how increased physician participation, which is induced from an increase in Medicaid reimbursement, affects the decision faced by potential Medicaid beneficiaries. If the potential beneficiaries weigh the cost against the benefit of enrolling in Medicaid and decide to take-up only when the benefit exceeds the cost, then the increase in access to care would encourage higher enrollment rates among the Medicaid-eligible. This paper is the first to explore the relationship between patients' access to care and take-up.

I focus on the effect of access to care on the health insurance status among poor children since this is the population that is both most likely to suffer from access problems and most vulnerable to financial and health shocks. As figure 1 shows, the uninsured rate among poor children, which is almost double the rate among non-poor children, is still high despite nearly universal eligibility for Medicaid.

The effect of improved access to care on take-up among poor children is identified by exploiting within-state variation over time in the Medicaid-to-Medicare primary fee index. I find that increasing the Medicaid fee payments from 65% to 100% of the Medicare level increases the take-up rate among poor children by 4.8 percentage points and decreases the uninsured rate by 6.2 percentage points, thus reducing the uninsured rate in this group by almost 30%. Therefore, improving access to care through increased physician reimbursements can be an effective way of providing health insurance coverage to uninsured low-income children.

The paper proceeds as follows. Section 2 lays out the potential mechanisms by which the increase in Medicaid provider payment improves access to care and eventually leads to an increase in take-up. Section 3 describes the measure for access to care and the main dataset. In section 4, I specify estimation strategies. Section 5 reports results for basic specifications. Section 6 addresses potential identification issues by reporting results for robustness checks. Section 7 concludes by discussing the policy implications of the findings in this paper.

2 Conceptual background

In this section, I discuss the possible mechanisms through which changes in the Medicaid fee would affect the incentives physicians perceive and in turn influence take-up behavior among potential Medicaid beneficiaries.

A substantial number of office-based primary care physicians place a limit on the size of their Medicaid practices or do not see Medicaid recipients at all (Held and Holahan, 1985; Perloff et al., 1997). The primary reason for this low level of physician participation in Medicaid appears to be the low Medicaid payments to doctors. According to a survey of fellows of the American Academy of Pediatrics, 58% of the pediatricians reported that the low fee was a key reason for limiting participation in Medicaid, and 53.3% of the pediatricians reported that Medicaid payments did not cover overhead (Yudkowsky et al., 2000).[2] Table 1 provides a glimpse of the access to care problem that Medicaid patients face. Although Medicaid provides superior care compared to not having any insurance (9% of Medicaid patients vs. 35% of the uninsured had no usual source of care), except for the row (6), Medicaid patients in general have greater problems in access to health care in a number of dimensions. For instance, they have a harder time getting a referral to a specialist. The fraction of Medicaid patients whose usual place of care is doctor's office (as opposed to hospital outpatient clinic, other clinic/health center and hospital emergency room) is considerably lower than Medicare or private patients. They also wait longer in the office or clinic relative to the patients with private insurance or Medicare.

[2] Others, such as paperwork concerns (40.5%), unpredictable payments (39.6%), and payment delays (34.3%) are also the reasons for limiting participation in Medicaid. Only 11.4% reported Medicaid payments cover overhead and 35.4% do not know whether Medicaid payments cover overhead.

In order to see how the change in Medicaid fees affects access to care, I first consider a simple case of a single payer (insurance) system where physician services are reimbursed by fee-for-service. There is an excess of demand in the Medicaid health care market since Medicaid patients face almost no out-of-pocket costs once insured, while marginal costs of providing care to Medicaid patients are not zero. This unmet excess demand for health care, the access problem, is likely to be more severe since the Medicaid reimbursement is low. Thus, if the Medicaid fee increases, it would improve access to health care since total supply of health services would increase.

An increase in the Medicaid fee has several confounding effects on the supply of health care when there are multiple insurance payers. The current health insurance market in the United States can be characterized by physicians' facing multiple payers such as private insurance, Medicaid and the State Children’s Health Insurance Program (SCHIP), private insurance, Medicare and other types of public insurance (i.e. Indian health service or military health care TRICARE). Theoretically, an exogenous increase in Medicaid fee would lead to both substitution and income effects. The substitution effect would occur as an increase in Medicaid fee would make marginal Medicaid patients more attractive relative to the marginal private patients. At the same time, a higher fee would make physicians richer so they would respond by decreasing the supply of care (income effects). McGuire and Pauly (1991) illustrate that the income effect likely dominates the substitution effect when insurance payers who cover a large volume of patients change the fee. The substitution effect dominates when insurance payers who cover a small volume of patients change the fee. Since Medicaid patients constitute a small share of total patients, the substitution effect dominates for the physicians whose practice-share of Medicaid patients is small. The increase in Medicaid fee would predict the increase in the quantity of care supplied to Medicaid patients.

Increases in the quantity of care can take several forms. First, physicians can spend more time with Medicaid patients (intensive margin). They may also accept more Medicaid patients or increase the probability of seeing Medicaid patients at all (extensive margin). Since greater physician participation means more choices for patients, it would make Medicaid a more attractive option to both existing and potential beneficiaries. Findings from earlier studies suggest that physician participation in the Medicaid program does in fact respond to Medicaid fee changes. In empirical analysis controlling for state fixed effects, Decker (2007) finds that higher Medicaid-to-Medicare fee ratios increase both the fraction of Medicaid patients seen by physicians and the number of private physicians who see Medicaid patients. Zuckerman et al. (2004) also document that physicians in states with the lowest Medicaid fees were less willing to accept new Medicaid patients in 1998 and 2003.

The increase in provider participation would indirectly improve other aspects of health care as well, such as having usual care occur in office-based settings and decreasing the travel costs involved in obtaining health care. With a lack of office-based physicians' participation, many Medicaid recipients are treated in freestanding clinics or hospital outpatient departments (Cohen, 1989; Long et al., 1986). Studies find that an increase in Medicaid payment shifts the usual place of care from clinics to private physicians' sites, which is more desirable for the continuity of care and for receiving preventive services (Cohen and Cunningham, 1995; Gruber et al., 1997). Decker (2009) also finds that cuts in fees shifted Medicaid patients away from physician offices toward hospital emergency department and outpatient departments.

In addition, the average distance to the nearest health care facility would decrease with greater physician participation. The care provided by Medicaid is practically costless to patients, but the patients may still face large travel costs relative to their income. The fact that the price elasticity of demand for health care is high for low-income people (Gertler et al, 1987) implies that potential Medicaid patients would be sensitive to changes in travel distance. Thus, reduced travel costs through increased physician participation may serve as another channel via which it increases take-up of Medicaid.

Some market characteristics and hospital policies may mitigate or confound the effect of fee changes on the supply of medical care discussed so far. One concern in particular is that the Medicaid fee policy might not be a relevant measure of access to care given the rapid growth of Medicaid managed care, where physicians are paid based on the capitation rate rather than on the fee-for-service basis. However, the fee-for-service (FFS) reimbursement continues to affect the majority of Medicaid enrollees. In 2006, about half of all Medicaid patients were enrolled in either FFS or primary care case managed (PCCM) plans, where under PCCM plans, services were still paid via FFS (Zuckerman et al. 2009). Also, the FFS reimbursement rates are highly correlated with what Medicaid health maintenance organizations (HMOs) pay physicians, as states often set capitation rates based on what they pay in the FFS part of the program (Zuckerman et al. 2004).

Another concern is that Medicaid patients are commonly served in hospitals and public clinics, and in these sites, services might not be reimbursed based on the Medicaid fee schedule. Hospital outpatient departments in most states have their own reimbursement system not tied to the Medicaid fee schedule, and Federally Qualified Health Centers (FQHCs) are paid via a cost-based reimbursement scheme which is also not tied to the Medicaid fee schedule. Also, physicians in hospitals and public clinics have less freedom in determining the supply of care since they are obligated to meet government mandates or institution goals (Baker and Royalty, 2000). Thus, the effect of the Medicaid fee changes would result mainly from private physicians who have more leeway to adjust their behavior following the fee changes.

From the beneficiaries' point of view, they will enroll when the value of health insurance exceeds the cost of receiving care and the other non-monetary enrollment costs. In terms of access to care, health insurance mainly has two roles: 1) it makes expensive care accessible by covering the expense for unexpected catastrophic events (Nyman, 1999), and 2) it makes care for routine check-ups and preventative illnesses accessible. I expect improvements in access on the latter role of health insurance to be the more relevant mechanism through which the changes in Medicaid fee affect take-up. For unexpected catastrophic events, uninsured individuals may receive one-time care at the hospital emergency room and may not be responsible for the cost (i.e. charity care). The Medicaid-eligible patients may also enroll after receiving emergency care, since hospitals are better off enrolling the patients and being reimbursed by the government than bearing the treatment costs themselves.

In sum, increasing the Medicaid fee would raise the perceived value of Medicaid in several ways: by making routine care more accessible, by shifting the usual place of care from public clinics to doctor's offices, and by decreasing travel costs involved in receiving routine care. Using a proxy measure for Medicaid fee policy for primary care, I expect to capture all the possible channels through which the fee influences take-up.

3 Data

3.1. Proxy for access to care: Medicaid to Medicare fee ratio

Since the increase in Medicaid fees would improve access to care, I employ a summary measure of Medicaid fee policies in modeling the individual's Medicaid take-up behavior. I propose using the Medicaid-to-Medicare fee (MMF) index as a proxy for access to care of public health insurance.[3]

The Urban Institute developed the MMF by surveying the District of Columbia and 49 states that have a fee-for-service (FFS) component in their Medicaid program. The MMF reports a weighted sum of the ratios of the Medicaid fee to the Medicare fee where the weight for each service is its share in total expenditure. I use data for three years, 1993, 1998 and 2003. The detailed documentation of this index is available in Zuckerman et al. (2004), Norton (1995) and Norton (1999). There are four components in the fee index: overall, primary care, obstetric care and other services. These fee indexes are highly correlated; in each year, the correlation coefficient between the fee index for primary care services and (1) for all services ranges from 0.93 to 0.95, (2) for obstetric services ranges from 0.49 to 0.69, and (3) for other services ranges from 0.57 to 0.73. I use the fee index for primary care as it is likely to be the most relevant service for children and it is most useful in capturing the incentives

[3] I thank Stephen Zuckerman for kindly sharing the Medicaid-to-Medicare fee data.

physicians face when providing routine care. Fee indexes for obstetric care and other services are less likely to predict take-up among children. I use these indexes in the falsification test (section 6.2).

It is worth noting that the Medicaid physician fee is set by each state and exhibits substantial variability across states and within states over time. On the other hand, there is much less heterogeneity in the package of services covered from state to state. This is because federal law requires states to cover major services, such as physician and hospital care. Even for optional services such as prescription drugs or dental care for which states do not have to pay, almost all states cover these expensive optional services (Gruber, 2000).

However, eligibility standards vary both across states and within states over time. Although I look at always-eligible children by focusing on the children in poverty, the variability in eligibility may pose a threat in estimating the relation between Medicaid fee and take-up. The increase in Medicaid fee may correlate with the increase in the eligibility standards, and this change in eligibility may affect insurance status through the crowding out of resources available to poor children. I test the robustness of the model to this concern in section 6.3.

Dividing the Medicaid fee by the Medicare fee adjusts the MMF to represent the relative standing of the Medicaid payment in the health insurance market. Since the Medicare fee is adjusted to take into account factors such as medical inflation in practice costs, geographic variations and general wage levels (Centers for Medicare and Medicaid Services), the MMF can be seen as a convenient summary of how well Medicaid pays physicians compared to other types of major public insurance.[4] I expect the Medicaid fee to drive the most of differences in the MMF across states since it exhibits

[4] Majority of services used in calculating primary fee indexes consist of office visits for some fixed time rather than the actual medical procedures used, abating the concern that services provided to elderly Medicare patients are less comparable to those provided to Medicaid children. Another issue is whether the ratio of the Medicaid fee to the private fee should be used instead. However, correlation coefficient between the ratio of the Medicaid fee to the private fee for obstetric care in 1992 (as reported by Currie, Gruber and Fischer 1994) and the Medicaid-to-Medicare fee in 1993 for overall, primary, obstetric and other services is positive and sizable, ranging from 0.27 to 0.60. In addition, the Medicaid and Medicare payments are lower than private insurance payments, thus comparing payments between Medicaid and Medicare might be more relevant margin for physician participation than comparing between Medicaid and private insurance.

greater disparities than Medicare. The difference in Medicare payments between the lowest and highest-paying state for a given procedure was not more than 25 to 30% in 2002 (Public Citizen Report), while the Medicaid fee index (i.e. without dividing by Medicare fee) for 2003 ranges from 56% of the national average to 228% (Zuckerman et al., 2004). This is because Medicare is a federal program and all the states make payments according to the same fee formula, while Medicaid is a state-administered program and each state can set its own payment level and formula.[5]

Figure 2 shows the Medicaid-to-Medicare primary fee index. On average, Medicaid paid only 78% of what Medicare paid in 1993, 66% in 1998, and 71% in 2003 for primary care. Except for Alaska, most states pay less for Medicaid than for Medicare. In 2003, New York had the lowest relative fee (.34) and Alaska had the highest relative fee (1.38) for primary care services, meaning that New York paid only 34% while Alaska paid 138% of what Medicare paid. In order to grasp how great the within-state variation is over time, I compare the overall standard deviation of the MMF in state and year cells with the standard deviation after taking out state and year fixed effects. The overall standard deviation is .206, and the standard deviation after taking out state and year fixed effects is .089. This indicates that about half of the total variation comes from across states while the other half comes from within-state variation over time. Figure 3 depicts changes in the Medicaid-to-Medicare primary fee index and shows that states change fees differentially at different points in time. Between 1993 and 1998, the majority of states decreased Medicaid payment relative to Medicare, with Alaska and New Mexico showing the greatest decrease and increase respectively. Between 1998 and

---

[5] The exact formula for Medicare physician fee schedule payment rates as of 2008 is:

[Work RVU*Budget neutrality adjustor (0.8806)*Work GPCI)+(PE RVU*PE GPCI)+(MP RVU*MP GPCI)]*Conversion Factor,

where Work RVU is Relative Value Units which reflect the relative levels of time and intensity associated with the service; PE RVU is to reflect Practice expense; Conversion Factor is updated on an annual basis according to a formula specified by statute; and GPCI represents Geographic Practice Cost Indices, purpose of which is to account for geographic variations in the costs of practicing medicine in different areas (Medicare Physician Fee Schedule, Centers for Medicare and Medicaid Services).

2003, more than half of the states improved Medicaid payment relative to Medicare, with Maine and Iowa showing the largest decrease and increase respectively.[6]

3.2. The March Current Population Survey

I employ the March Current Population Survey (the March CPS), 1995, 2000 and 2005 in conjunction with the Medicaid-to-Medicare fee index to identify the effect of improving access to care on take-up of public health insurance.[7] Respondents are asked about their health insurance coverage and income in the prior year, thus the data covers 1994, 1999 and 2004. The survey of households is intended to gather measures of full-year uninsurance rather than point-in-time uninsurance (State Health Access Data Assistance Center and Robert Wood Johnson Foundation, 2007).

The March CPS offers a variety of information on individual characteristics, including health insurance status. In addition, its large sample size allows for nationally representative estimates when using sampling weights. The March CPS also identifies individuals from every state in the United States. Since my identification comes from the variation within states over time, having all states is an advantage over other widely used datasets for health insurance research, such as the Survey of Income and Program Participation (SIPP).

Several sample restrictions are made in the analysis. I consider only the population of children whose household income falls below the poverty level since this group is the poorest and the most vulnerable group. Several other reasons justify this restriction on income. First, the restriction results in a relatively homogenous group of children who are not directly affected by the SCHIP expansion. Although the eligibility income limit of the SCHIP has changed drastically during the period in which this paper is interested, it affects mainly middle-income children above the federal poverty level. Thus, limiting the samples to those below the poverty level allows the use of policy

---

[6] According to figure 3, changes in the fee ratio in Alaska (between 1993 and 1998) and Iowa (between 1998 and 2003) appear to be outliers. Excluding these two states did not change the estimates of the fee ratio much.
[7] Data was extracted from the IPUMS website: http://cps.ipums.org/cps.

variations of the Medicaid-to-Medicare fee index only in identifying its effect, while holding changes in the income eligibility constant. Second, the Medicaid-to-Medicare fee index is a better proxy for the children who are eligible for Medicaid rather than SCHIP. Since the eligibility income limit for SCHIP is usually between 100-300% of the federal poverty level, children in poverty would be eligible for Medicaid.[8]

Another sample restriction is that only children younger than 12 are considered. The Omnibus Budget Reconciliation Acts 1990 (OBRA 1990) required states to cover children in poverty born after September 30, 1983, so the children who are younger than 12 as of 1995 and in poverty are eligible for public insurance. In addition, older children are more likely to work, and if so they may have different channels for obtaining insurance coverage. Limiting the analysis to children below a certain age allows me to circumvent this potential issue.

Other sample restrictions include citizenship status, living arrangements, and a child's relation to the head of the household. Starting with children in poverty who are younger than 12 and who are matched to the Medicaid-to-Medicare fee data, I exclude foreign-born children (6.1% of the remaining sample is dropped) and those who live in group quarters (0.03%). Lastly, I consider children who are related to the household head as child, grandchild, relative or non-relative only (3.1% of the remaining sample is dropped).[9] The resulting sample used in the analysis contains 18,635 children in 1994, 1999 and 2004.

4 Empirical Specifications

The basic specification of estimating the effect of the fee ratio on own insurance coverage status is shown in equation (1). I merge the lagged Medicaid-to-Medicare primary fee index (*Fee*) in each year and state with the sample of children. Since reported insurance status and income are for

[8] Nevertheless, payments for SCHIP and Medicaid are highly correlated since SCHIP payments are typically based on Medicaid payments.
[9] That is, I exclude children whose relation to the head is sibling, unmarried partner, housemate/roommate, roomer/boarder/lodger and foster children.

previous year, lagged fee is constructed by relating the fees in 1993, 1998 and 2003 to March CPS 1995, 2000, and 2005. I use one-year lagged Medicaid-to-Medicare fee since the current fee is likely to affect future take-up. A one-year timing lag of physician fee is also used in the past literature within a similar context (i.e. Currie et al., 1995). However, the exact time it takes to affect take-up is not known and I also experiment with other lag structures in section 6.1.

The specification of coverage for an insurance status *Y* for individual *i* in year *t* is as follows.

$$Y_{it} = \beta_0 + \beta_1 Fee_{i,t-1} + \beta_2 X_{it} + \sum_t \beta_t Year_{it} + \sum_s \beta_s State_{it} + \varepsilon_{it} \qquad (1)$$

The first outcome of interest is *Y=Public*, an indicator variable for whether a child is covered by public insurance (Medicaid). I also examine the effect of *Fee* on *Y=Private* and *Uninsured*, the indicators for being covered by private insurance and being uninsured. Effects found in these outcome variables would indicate where the change in take-up of *Public* comes from—whether from the crowding out of private insurance or from the reduction in the number of uninsured children. ε is assumed to follow a logistic distribution so equation (1) is estimated using a logit model. Standard errors are clustered by state to account for possible serial correlation over time within states. All estimates use sample weights.

The vector *X* contains demographic variables that can have independent effects on the demand for insurance coverage. For child characteristics, I include gender, race, the number of siblings, age and the relation to the household head. Parent's characteristics include age, education level, and employment information (i.e. whether either of parent works at a firm of equal or more than 100 employees, or is self-employed.) When both the mother and the father of the child are present in the data, I use a higher value between them for parent’s age and education variables. When a child does not have parents or when the parents cannot be located in data, I use the household head's characteristics instead. Family characteristics include the number of workers in the family, income as a percentage of the federal poverty level, and whether a child has a single parent. Lastly, the unemployment rate by state/year is used to account for some time-specific state effects.

I include state fixed effects and year dummies. State fixed effects would capture different time-unvarying characteristics of the state that may affect the decision to get health coverage. Likewise, year dummies would capture nationwide effects in the health market such as an increase in the price of health care that induces more people on average to be covered by public insurance upon becoming eligible.

Sample means for the dependent and control variables are reported in Table 2. About 64% of the poor children in sample were covered by public insurance while 20% were uninsured. The proportion of children covered by public insurance was the lowest in 1999 but it recovered in 2004. It was also in 1999 that the uninsured rate was highest, which may seem puzzling given that the unemployment rate was the lowest. At the same time, however, the lagged Medicaid-to-Medicare fee index for primary care services was least generous, which could partly explain the increase in uninsured rate. Child characteristics have not changed very much across years. Some parent characteristics have varied over time, such as the proportion of parents who have at least high school level of education, work, and work at a large size firm. Family characteristics appear to be reasonably stable over time.

5 Results

5.1. Graphical relation

Before I present the regression results, I start with a simple graphical analysis. Figure 4 shows a graphical relation between the changes in the Medicaid-to-Medicare primary fee index (*Fee*) and take-up. For each state, the change in take-up—the change in the fraction of poor children receiving public insurance in each state—is plotted against the change in the fee ratio for both the years between 1993 and 1998 and between 1998 and 2003. This is effectively a first-differenced model using state and year level data, adjusting only for time-invariant state fixed effects. The difference in take-up rate is positively related to the difference in the fee ratio; the slope of the ordinary least square regression when I regress changes in take-up on changes in the primary fee index is 0.322 with the standard error of 0.113.

5.2. Basic specification

The effects of *Fee* in predicting three outcomes *Public*, *Private* and *Uninsured* are estimated by the logit model. The average marginal effects are listed in Table 3.[10] Panel A shows the estimates by regressing insurance coverage (by type) on Medicaid-to-Medicare fee ratio (*Fee*) without state fixed effects. Panel B presents the estimates with state fixed effects.

The empirical results support the prediction that increasing Medicaid payment relative to Medicare increases take-up. A 10-percentage-point (i.e. equivalent to roughly a half of the standard deviation of *Fee*) increase in *Fee* raises the overall Medicaid take-up among poor children by 1.38 percentage points. There is no strong evidence that a higher *Fee* promotes crowd-out once state fixed effects are added, as the estimates in column (2) in panel B suggest. Although the estimate in panel A in column (2) indicates a negative correlation between *Fee* and the probability of being covered by private insurance, this is hardly evidence for crowd-out since the estimates in panel A may be contaminated by unobservable fixed state characteristics. Since the same increase in *Fee* has no significant effect on private insurance coverage but reduces the uninsured rate by 1.77 percentage points, most of the increase in take-up seems to come from those who would have been uninsured. Putting this into a context, when Medicaid-to-Medicare ratio increases from current 0.65 to 0.75, the expected drop in uninsured rate is about 1.77 percentage points. Since the average uninsured rate among poor children is about 20%, a 10-percentage-point change in *Fee* leads to about a 10% reduction in the uninsured rate.

[10] The sample average of marginal effects of *Fee* using logit and linear probability model (LPM) are qualitatively similar, albeit the marginal effect in LPM tend to be smaller in magnitude.

Another finding from panel A and B in column (3) is that states with a high level of the fee ratio also have unobserved tendency to have a high uninsured rate. For instance, these states may also offer more free clinics, reducing patient willingness to get health insurance. Therefore, omitting state fixed effects may lead to an upward bias of the estimate of *Fee* on the probability of being uninsured.

As summary statistics in Table 2 show, some children reported having public and private insurance (6.3% of the samples). I assume that public insurance is a more relevant type for this group, as Cantor et al. (2007) find that many public coverage enrollees misreported having non-group private insurance. In order to check the sensitivity of the result depending on how this group is treated, I also estimate using six mutually exclusive outcomes of public only, group coverage only, non-group coverage only, both public and group coverage, both public and non-group coverage, and uninsured, following the strategy by Gruber and Simon (2008).[11] I find the largest positive effect of *Fee* when the dependent variable is an indicator of "public and non-group private". This result indicates that the children who reported both public and non-group private insurance are the most affected group and may be more confused in reporting their coverage—i.e. they may be new to the public insurance and thus may be unsure of the type of coverage they have. This is consistent with the previous finding that many people in the public insurance program believed that they were covered by non-group private insurance, particularly during the SCHIP period when some state programs looked more like private insurance (Lo Sasso and Buchmueller, 2004). I believe the "uninsured" category is less subject to the reporting problem, as there should be much less confusion as to whether they had health insurance at all than what type of health coverage they have. Therefore, I expect the "uninsured" category to be most credible amongst all the outcomes.

[11] As an alternative approach followed by Lo Sasso and Buchmueller (2004), I estimated three-stage-least-square (3SLS) in which I impose restrictions that the coefficients of *Fee* across three equations sum to zero. Without the restriction, the "both public and private" group can be treated either as public or as private insurance. The restricted 3SLS essentially provides the weighted average of these two estimates that yield minimum variance. The resulting marginal effects are very similar to the logit estimates.

The rest of the rows in Table 3 describe the relation between insurance status and individual characteristics. Although controlling for these characteristics affects the marginal effect of *Fee* minimally (not reported) and many of the results should be interpreted as correlations rather than causal relationships, I briefly discuss the general characteristics that determine enrollment in Medicaid. Whites are less likely to be covered by public insurance than non-Whites. Having more siblings is associated with higher take-up and lower uninsured rate, probably because enrolling more kids in public health insurance provides greater benefits in total while the marginal cost of enrolling an extra child is small. Older children are less likely to be covered by public insurance and more likely to be either privately insured or uninsured.[12]

Parent characteristics are also important factors for the child's insurance choice. The omitted employment group of the parent characteristics in Table 3 is non-working parents. Typically, parents who work at large firms are more likely to insure a child with private insurance, as the majority of employees in large firms get group private insurance through their employer. The probability of being uninsured is higher when parents work in small firms or when they are self-employed than when they work at large firms. More specifically, the uninsured rate is higher even when compared to the children whose parents do not work. This perhaps is because the parents who work in small firms or who are self-employed, who are not adequately provided with group private health insurance, face a higher opportunity cost of time than non-working parents. Parents who work in large firms face a similarly high opportunity cost of time but they often have access to less-expensive group private insurance. It is therefore important to provide health coverage to children of the working poor whose employers do not offer group health insurance.

[12] I also estimate using dummies for each age to capture non-linear effect of age but the marginal effect of *Fee* does not change at all.

6 Robustness Tests

In this section, I address possible concerns that the basic specification in section 5 may raise. In particular, I discuss the assumption made about functional forms, the use of one-year lag structure of *Fee*, and other time-varying state characteristics that may also correlate with *Fee*. The ideal experiment would require that states be the same except for the randomly determined Medicaid reimbursement rates. In reality, however, states may endogenously change Medicaid fee, and any correlations between changes in fee and other unobserved states' efforts to increase take-up (e.g. simpler enrollment procedures or greater outreach to potential enrollees) would cause problems in identification. This section intends to address such concerns by controlling for some observable time-varying state enrollment efforts.

Although not reported, the results are robust in restricting the samples to be below some arbitrary multiples of the federal poverty line, such as 75% and 125%, in that results do not vary meaningfully under these different specifications.[13] When I run a multinomial logit using a dependent variable that takes an integer for each *Public*, *Private* and *Uninsured*, where this categorical outcome follows a multinomial distribution, the average marginal effect of *Fee* is very similar to when I use a logit model. Further, controlling for lagged welfare caseload that varies by state and year does not affect the results noticeably. I also run the models including various controls such as interaction terms between year dummies and age dummies, and interaction terms between state fixed effects and age dummies. The marginal effect of *Fee* is qualitatively similar to the baseline specification, although the p-value of the effect of *Fee* on take-up becomes larger (about 0.12) in the specifications which include both interactions between year and age fixed effects and interactions between state and age fixed effects. The effect of *Fee* on the probability of being uninsured is virtually unaffected; the average marginal effect changes only in the third decimal place.

[13] The effect of *Fee* appears to be diluted little when using the federal poverty line of 125%, possibly because some children are not eligible for Medicaid.

6.1. Different lag structures

I rerun the results using different lag structures of *Fee* in order to address the concern that the time it takes to affect take-up may not be exactly one year. One potential issue with the March CPS data is the lack of clarity on the timing of the health insurance coverage, and the most relevant lag structure highlighting the relationship between *Fee* and take-up may not be one year. Since I have *Fee* measure for three years (1993, 1998 and 2003), I relate these measures using samples from different years to construct *Fee* of a different lag. For instance, the contemporaneous *Fee* is obtained by merging *Fee* data with 1993, 1998 and 2003, and the one-year lag is constructed by merging *Fee* with 1994, 1999, and 2004 population, and so forth. Table 4 shows the results. *Fee* does not have a significant effect on any of the three outcomes when the contemporaneous *Fee* is used. The effect found here is likely to indicate a correlation between *Fee* and the outcomes rather than causation since the reported insurance status is from the same year as *Fee*. The one-year lag shows the strongest relationship and the average marginal effect of *Fee* seems to deteriorate when the two-year lag is used; magnitude of the effect diminishes from 0.138 to 0.096 when the dependent variable is *Public*, and from -0.177 to -0.033 when *Uninsured* is used as outcome.

6.2. Different types of fee ratio

There are four components in the fee index: all, primary care, obstetric care and other services. So far I have used the fee index for primary care as it is expected to be the most relevant fee for children and to be most useful in capturing the incentives physicians encounter when providing routine care. The main health care services from which reimbursements are used to construct primary care fee index are office visits with new and established patients. The fee index for obstetric services includes care needed for vaginal delivery and cesarean delivery.[14] The index for other services includes payments for initial hospital care, initial hospital consultation, some surgeries, imaging and

[14] Pregnancy over age 65 (upon which people become eligible for Medicare) is highly unlikely but some people with certain disabilities are also eligible for Medicare regardless of age.

laboratory tests. The correlation coefficient between the primary and obstetric fee index is 0.6 and between the primary and other fee is 0.67. When the primary fee index is regressed on each of these other fees along with state fixed effects and year fixed effects, the coefficient of obstetric fee is 0.27 (t-value is 3.01) and the coefficient of other fee index is 0.37 (t-value is 3.65).

I use these other fee indexes to construct a falsification test, by adding them in the main regression. The idea is that to the extent that the primary *Fee* is not correlated with the included fee indexes, there should be no major movement in take-up in response to a less relevant fee. That is, the average marginal effect of these other fees on predicting the health insurance outcomes would not be large once the primary fee index is controlled for.

Table 5 presents estimates of the primary *Fee* when controlling for other types of fee ratio (expect for the fee ratio for “all services” since its correlation with primary service is above 0.9). The results indicate that it is indeed the primary fee index that drives the results, as the other indexes do not predict the outcomes. Even when I do not control for the primary fee index, these other fee indexes are still not significant predictors of any of the three outcomes. This is despite the primary fee index being highly correlated with other available indexes.[15]

6.3. Controlling for other time-varying state policies

The next few robustness checks address the possibility of selective timing in Medicaid fee changes in relation to other changes in health insurance policy that could affect the take-up decision.

One of the most notable changes in the public health insurance market during the period of analysis is the expansion of public health insurance to children, which occurred through the creation of the State Children’s Health Insurance Program (SCHIP). The number of eligible children increased

[15] Obstetric care can be related to children’s take-up, as mothers get obstetric care and are likely to enroll their child if they are on Medicaid. Interestingly, I find that the average marginal effect of the obstetric care fee is largest among the infants (age 0 to 1), followed by children aged 2 to 5 and children aged 6 to 11. This pattern is found whether I control for primary care fee index or not. However, none of the effects is statistically significant at 10%.

from 21.7 million in 1996 to 37.3 million in 2001 (Hudson and Selden, 2007). As a result, the effect of *Fee* on take-up among poor children can be influenced by increased demand from the children who become eligible for public health insurance after the expansion. For instance, states with greater SCHIP expansion may increase Medicaid payments to ensure that enough health care providers participate in the program.

In order to construct a proxy for the demand for public health insurance, I construct a measure by applying state's eligibility policy to a *constant* sample of all children (regardless of income) in 1993 for each age and calculating the fraction of eligible children. I call this measure a simulated eligibility rate. This in effect is the portion of children who would have been eligible had the population characteristics remained the same as those in 1993, and it captures how generous eligibility rule is in a given state, age and year. Eligibility policy may vary by state, age and year, and differential income eligibility cutoffs across these dimensions are a main source of variation in the generosity. Using the constant sample ensures that variation in demand for public health insurance come from changes in policy only, rather than from population characteristics. As shown in figure 5, simulated eligibility has shown a steady increase over time.

The panel A in Table 6 shows the marginal effect of *Fee* after controlling for the lagged simulated eligibility rate (When contemporaneous eligibility measure is used instead, the average marginal effect of *Fee* did not change in any meaningful way). The average marginal effect of *Fee* is very similar to the basic estimates in panel B in Table 3.

The next two time-varying state variables are related to Medicaid enrollment procedures. Most states did not require asset tests and had presumptive eligibility, but the extent to which they simplify Medicaid enrollment procedures varies across years. The next panels B and C in Table 6 report the results after controlling for time-varying state policies that attempt to reach out to potential Medicaid enrollees, such as presumptive eligibility, asset and income verification requirements, requirements for face-to-face interviews, and waiting periods. Of all the policies that may affect

Medicaid take-up, I could find only two policies—whether states allow for presumptive eligibility and requirement for asset test—that meet the data requirements (i.e. available for the same years as the data on Medicaid-to-Medicare fee ratios).

Controlling for only the state's presumptive eligibility condition does not affect the estimate of *Fee* much, affecting only the third decimal place (Panel B). When the indicator of whether there is asset requirement is included (Panel C and D), the estimated average marginal effect of *Fee* on take-up of public insurance does not change meaningfully but loses its precision compared to the baseline specification in Table 3. Panel E present the results when a simulated eligibility rate and two eligibility measures are controlled for altogether. In all cases, *Fee* is a significant predictor of the probability of being uninsured, which, as discussed earlier, is the most reliable outcome measure. In the most restrictive specification (Panel E), the magnitude of the average marginal effect on the probability of being uninsured decreases to 0.122, perhaps the lower bound of the true effect of *Fee*.

The results shown here may not perfectly eliminate omitted variable bias, but certainly mitigate some concerns about the omitted variable bias.[16]

7 Policy implications and conclusion

Even though the existing literature and anecdotal evidence suggest that Medicaid's low rate of payment hurts physician incentives to treat Medicaid patients, relatively little is known about the role of access to care on the take-up of public health insurance. In this paper, I use the Medicaid-to-Medicare fee index for primary care services (in 1993, 1998, and 2003) as a proxy for access to care to

[16] As another robustness check, I control for the Medicaid managed care penetration rate (MMCPR) in the regression. Managed care penetration rate, the fraction of the Medicaid caseload in Medicaid managed care organizations, differs by state and may have direct impact on health insurance coverage through its effect on perceived benefits of health insurance. If the extent of Medicaid managed care expansion is correlated with *Fee*, it may bias the estimate. Ideally, MMCPR data for 1993, 1998 and 2003 are available, but the data in 1993, 1997 and 2001 are the closest I could find (However, the correlation coefficient between MMCPR 1992 and 1993 is 0.92 and between MMCPR 1992 and 1994 is 0.62, which suggest that 1997 and 2001 data would be reasonably close to 1998 and 2003 data). When I control for this measure, the average effect of *Fee* affects only the third decimal place. In order to check whether there is differential effect of *Fee* in the state that experienced greater growth in the Medicaid managed care organizations, I interacted *Fee* and MMCPR. The interaction is not statistically significant at 10% (Data source: Currie and Fahr, 2005; Holahan and Suzuki, 2003).

investigate the effect of Medicaid fees on the health insurance coverage. Understanding whether an increase in the Medicaid fee can be an effective policy lever to promote take-up is crucial in the current situation where states have substantial discretion over setting the fee paid to physicians and hospitals. Increases in fees have a beneficial effect on ensuring higher quality and more timely access to care, while reducing the uninsured rate.

The findings in this paper provide an additional dimension in explaining the puzzle of "eligible but not enrolled". The most conservative estimate suggests that an increase in the Medicaid-to-Medicare fee index by 10 percentage points (about a half of standard deviation of the fee index) is associated with a decrease in the uninsured rate by 1.22 percentage points within the low-income population. About 41% of the 9 million uninsured children are in poverty (so are eligible for Medicaid), the findings indicate that a 10 percentage point increase in fee payments would lead about 45,000 low-income children to take-up Medicaid. Increasing physician fees would be costly, but movement of care from hospital-based settings (outpatient and emergency departments) to physician offices might offset some part of the costs since fees for care in hospital-based settings tend to be higher.[17]

Increasing Medicaid payment does more than simply encourage Medicaid take-up. The cost of insuring these children is incurred in the short term while the benefits of insuring children will accrue over time. Although it is hard to assess the long-term effects of increasing access to care, greater nutrition and health utilization during childhood are likely to affect human development

---

[17] I did a back-of-the-envelope calculation on how much it takes to insure these children. The average Medicaid-to-Medicare fee payment ratio (at the state level) was 0.71 and the standard deviation was 0.19 in 2003. Increasing the fee index by 10 percentage points then requires the average-paying states to increase its fee ratio by 14%. In 2003, total Medicaid spending on physician services was 8.1 billion dollars (i.e. according to Financial Management Report for FY-2003 provided by Centers for Medicare and Medicaid Services, national total Medicaid expenditure on physicians' services was 8,116,481,480 dollars). In 2002, children incurred 18% of the total Medicaid expenditures (Source: The Medicaid Program at a Glance, Jan 2004, Kaiser Family Foundation). Roughly speaking, then it takes 204 million dollars to cover 45,000 children, or about 4500 dollars per child. Certain assumptions are made in the calculation. Among others, these are: (1) the fee increases are directed to children only (i.e. instead of the elderly and disabled), (2) Medicaid fee is the only policy instrument used in reducing the number of poor uninsured children, and (3) spending on marginal enrollees are the same as spending on the average enrollees.

outcomes, such as improvements in learning ability and productivity (Levine and Schanzenbach, 2009).

The Patient Protection and Affordable Care Act (PPACA) legislature that was signed into law in 2010 requires that Medicaid reimbursement rates for certain primary care services to 100 percent of Medicare rates in 2013 and 2014. This paper sheds some light on its possible impacts on Medicaid enrollment among poor children, demonstrating that supply side constraints due to low payments for primary care help to explain the puzzle of incomplete participation in Medicaid among eligibles. From a broader perspective, this new requirement would affect not only poor children but also the higher income group who have become eligible through the SCHIP expansion. Although I do not find evidence that higher Medicaid fee promotes the crowd-out of private insurance among low income children, the crowd-out may occur among a higher income group, who are more likely to be able to afford private insurance. Therefore, to the extent that Medicaid fee is correlated with SCHIP fee, the natural next step that can be taken is to evaluate the effect of the Medicaid-to-Medicare fee on take-up of SCHIP. This is only one possible fruitful topic for future research, and I expect to see more discoveries along the way.

Acknowledgements

I am most grateful to Julie Cullen. I thank Julian Betts, Roger Gordon, Joshua Graff Zivin, Gordon Hanson and Richard Kronick for many helpful suggestions, as well as Sarada, Tiffany Chou, Gordon Dahl, Nora Gordon, Eunkyeong Lee, Jason Shafrin, Hee-Seung Yang, Andrew Zau, and various seminar participants for their generous comments.

Table 1: Access to care across health insurance status

	Medicaid	Medicare	Private	Uninsured
(1) Problem with getting a referral to a specialist	0.40	0.18	0.21	---
(2) Problem with delayed health care while waiting for approval	0.87	0.69	0.55	---
(3) Needed approval for any care, tests or treatment	0.30	0.13	0.25	---
(4) Usual place of care				
Doctor office	0.51	0.63	0.74	0.32
Hospital outpatient clinic	0.11	0.07	0.04	0.07
Other clinic or health center	0.22	0.11	0.08	0.16
Hospital emergency room	0.04	0.02	0.01	0.07
Other	0.03	0.07	0.05	0.03
No usual source of care	0.09	0.10	0.08	0.35
(5) Time spent waiting until seen by medical professional at last doctor visit, measured in minutes	35.25	26.13	23.26	40.05
(6) The lag time between making the appointment and the last doctor visit, measured in days	14.45	29.64	22.07	17.73
(7) Travel time at last doctor visit, measured in minutes	20.80	21.05	18.08	21.64

Notes: Author's calculation using Community Tracking Study Household Survey 2003. The reported values from (1) to (4) are the fraction of respondents who agree to the stated question given their insurance status shown in each column. The numbers from (5) to (7) report the mean given insurance status. Medicare, private insurance and no insurance have values statistically significantly different from Medicaid at the 5% significance level in all cases except for (7).

Table 2: Sample means of children in poverty

	1994	1999	2004	Total
Dependent Variable				
Public	0.667	0.585	0.664	0.642
Private	0.136	0.174	0.16	0.155
Uninsured	0.198	0.241	0.176	0.203
Public and Private (Subsumed under Public)	0.062	0.06	0.066	0.063
Time varying state characteristics				
Medicaid-to-Medicare Primary fee index, lagged (*Fee*)	0.706	0.579	0.637	0.646
	(0.186)	(0.180)	(0.162)	(0.184)
Unemployment Rate	5.584	4.149	5.319	5.075
	(1.233)	(0.774)	(0.868)	(1.169)
Child Characteristics				
Female	0.493	0.5	0.489	0.494
White	0.613	0.627	0.631	0.623
Num. of Siblings	1.746	1.732	1.622	1.701
Age	4.84	5.174	5.052	5.008
*Parent Characteristics**				
Age	32.656	33.27	33.99	33.276
Above High School	0.253	0.267	0.314	0.277
Work	0.595	0.739	0.674	0.664
Work at a firm with less than 100 Emps	0.28	0.386	0.334	0.329
Work at a firm with more than 100 Emps	0.281	0.313	0.283	0.291
Self Employed	0.07	0.059	0.078	0.069
Family Characteristics				
Num. of Workers	1.069	1.262	1.171	1.159
Family Size	4.673	4.638	4.625	4.647
More than one family in the household	0.132	0.168	0.16	0.152
Single Mother	0.591	0.573	0.576	0.581
Single Father	0.051	0.049	0.056	0.052
Do not live with own parent	0.054	0.071	0.081	0.068
Income in % FPL	49.347	50.038	47.817	49.046
	(28.802)	(30.830)	(32.687)	(30.733)
Number of observations	6488	4321	7826	18635

Notes: Data source is from the March Current Population Survey 1995, 2000, 2005 but since respondents are asked about insurance status for prior years, their insurance status refers to 1994, 1999 and 2004. Standard deviation for continuous variables is shown in parenthesis.

Samples are weighted using a person-level weight: the inverse probability of selection into the sample.

* When both mother and father are present, I use higher age and education level between two. When parents of a child cannot be identified, in which case I infer as the child not living with parents, I use the household head's characteristics instead.

Table 3: The effect of Medicaid-to-Medicare fee ratio on health insurance coverage: for three main outcomes

	(1) Public	(2) Private	(3) Uninsured
	Panel A: Without State FE		
Fee	-0.023	-0.022	0.043
	(0.038)	(0.034)	(0.050)
	Panel B: With State FE		
Fee	0.138**	0.040	-0.177***
	(0.070)	(0.054)	(0.062)
Child Characteristics			
Female (d)	-0.006	-0.000	0.007
	(0.006)	(0.004)	(0.006)
White (d)	-0.052***	0.049***	0.005
	(0.013)	(0.008)	(0.011)
Num. of Siblings	0.022***	-0.005	-0.017***
	(0.004)	(0.004)	(0.004)
Age	-0.007***	0.003***	0.005***
	(0.001)	(0.001)	(0.001)
Parent Characteristics			
Age	-0.005***	0.004***	0.002***
	(0.001)	(0.000)	(0.001)
Above High School (d)	-0.093***	0.078***	0.014
	(0.010)	(0.011)	(0.011)
Work at Firm with <100 Emps (d)	-0.045***	-0.005	0.058***
	(0.017)	(0.013)	(0.012)
Work at Firm with >=100 Emps (d)	-0.068***	0.072***	-0.001
	(0.023)	(0.015)	(0.012)
Self Employed (d)	-0.159***	0.073***	0.080***
	(0.036)	(0.020)	(0.023)
Family Characteristics			
Num. of Workers	-0.053***	0.037***	0.014**
	(0.010)	(0.005)	(0.007)
Num. of Families > 1 (d)	-0.073***	0.013	0.066***
	(0.020)	(0.010)	(0.018)
Single Mother (d)	0.125***	-0.031***	-0.096***
	(0.017)	(0.011)	(0.014)
Single Father (d)	0.020	0.012	-0.031**

	(0.022)	(0.021)	(0.013)
Don't Live with Parent (d)	0.139***	-0.099***	-0.037*
	(0.021)	(0.012)	(0.021)
Income in %FPL	0.000	0.001***	-0.001***
	(0.000)	(0.000)	(0.000)
Relationship to the head			
Grandchild (d)	-0.140***	0.038***	0.109***
	(0.020)	(0.013)	(0.021)
Relative (d)	-0.008	-0.125***	0.041
	(0.034)	(0.025)	(0.027)
Nonrelative (d)	-0.100***	0.115***	0.001
	(0.030)	(0.025)	(0.023)
Other			
Year== 1999 (d)	-0.041	0.025	0.014
	(0.027)	(0.017)	(0.020)
Year== 2004 (d)	0.042**	0.013	-0.053***
	(0.021)	(0.011)	(0.018)
Unemployment Rate	-0.004	-0.004	0.006
	(0.013)	(0.006)	(0.013)
Mean dependent variable	0.642	0.155	0.203

Notes: Average Marginal effects. All regression sample weights and standard errors are clustered by state. Robust standard errors are in parentheses. State/year fixed effects are included. Omitted group for parent’s work status is non-working parents. * p<0.10 ** p<0.05 *** p<0.01 (d) a dummy variable

Table 4: Different lag structures

	(1) Public	(2) Private	(3) Uninsured
Fee t (N=19631)	-0.096	0.028	0.078
	(0.109)	(0.064)	(0.070)
Fee t-1 (N=18635)	0.138**	0.040	-0.177***
	(0.070)	(0.054)	(0.062)
Fee t-2 (N=16808)	0.096	-0.078	-0.033
	(0.083)	(0.070)	(0.048)

Notes: Average Marginal effects. All regression sample weights and standard errors are clustered by state. Robust standard errors are in parentheses. All regressions include individual characteristics and state/year fixed effects. * p<0.10 ** p<0.05 *** p<0.01.

Table 5: Different types of the fee ratio

	(1)	(2)	(3)
	Public	Private	Uninsured
		Panel A	
Primary	0.172**	0.051	-0.231***
	(0.077)	(0.065)	(0.066)
Obstetric	-0.019	-0.052	0.074
	(0.111)	(0.057)	(0.090)
Other	-0.111	0.052	0.080
	(0.109)	(0.071)	(0.081)
		Panel B	
Primary	0.150**	0.060	-0.216***
	(0.075)	(0.062)	(0.066)
Obstetric	-0.032	-0.046	0.084
	(0.105)	(0.056)	(0.086)
		Panel C	
Primary	0.165**	0.033	-0.203***
	(0.076)	(0.060)	(0.064)
Other	-0.115	0.042	0.099
	(0.100)	(0.076)	(0.073)

Notes: Average Marginal effects. All regression sample weights and standard errors are clustered by state. All regressions include individual characteristics and state/year fixed effects. * p<0.10 ** p<0.05 *** p<0.01.

Table 6: Controlling for other time-varying state policies

	(1) Public	(2) Private	(3) Uninsured
	Panel A		
Fee	0.134*	0.032	-0.166***
	(0.068)	(0.051)	(0.061)
Simulated eligibility rate	0.047	0.075	-0.142
	(0.115)	(0.094)	(0.112)
	Panel B		
Fee	0.136*	0.043	-0.178***
	(0.072)	(0.053)	(0.063)
Presumptive eligibility	-0.005	0.015	-0.003
	(0.048)	(0.026)	(0.022)
	Panel C		
Fee	0.128	0.030	-0.154**
	(0.080)	(0.057)	(0.070)
No asset requirement	0.010	0.014	-0.019
	(0.019)	(0.009)	(0.017)
	Panel D		
Fee	0.127	0.032	-0.155**
	(0.081)	(0.056)	(0.071)
Presumptive eligibility	-0.003	0.018	-0.007
	(0.048)	(0.024)	(0.022)
No asset requirement	0.009	0.016*	-0.020
	(0.018)	(0.009)	(0.016)
	Panel E		
Fee	0.116	0.017	-0.122*
	(0.079)	(0.050)	(0.069)
Simulated eligibility rate	0.069	0.091	-0.188*
	(0.106)	(0.094)	(0.102)
Presumptive eligibility	-0.006	0.014	0.003
	(0.046)	(0.026)	(0.019)
No asset requirement	0.014	0.021***	-0.032*
	(0.018)	(0.008)	(0.017)

Notes: Average Marginal effects. All the reported variables are lagged by one year. All regression sample weights and standard errors are clustered by state. All regressions include individual characteristics and state/year fixed effects. * p<0.10 ** p<0.05 *** p<0.01.

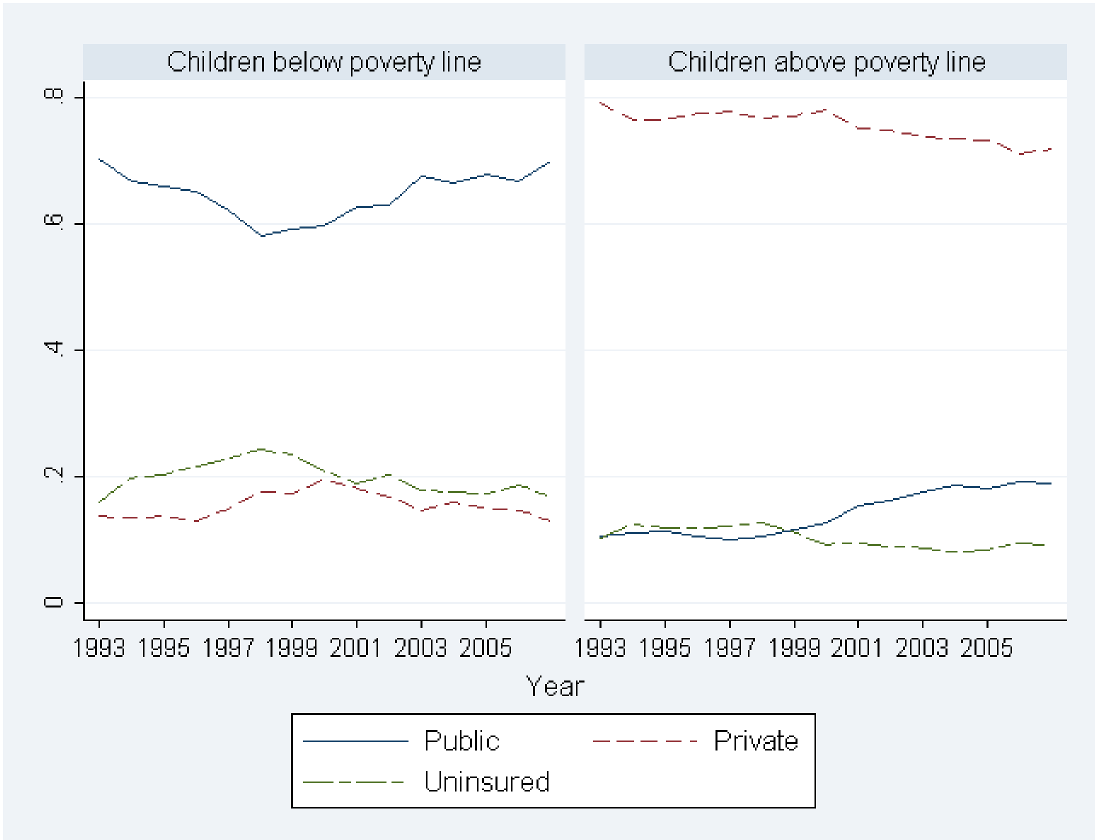

Figure 1: Children's insurance coverage between 1993 and 2007 by poverty status

Notes: Calculated using March CPS 1994-2008. Children below 12 years old in each year are used in the calculation.

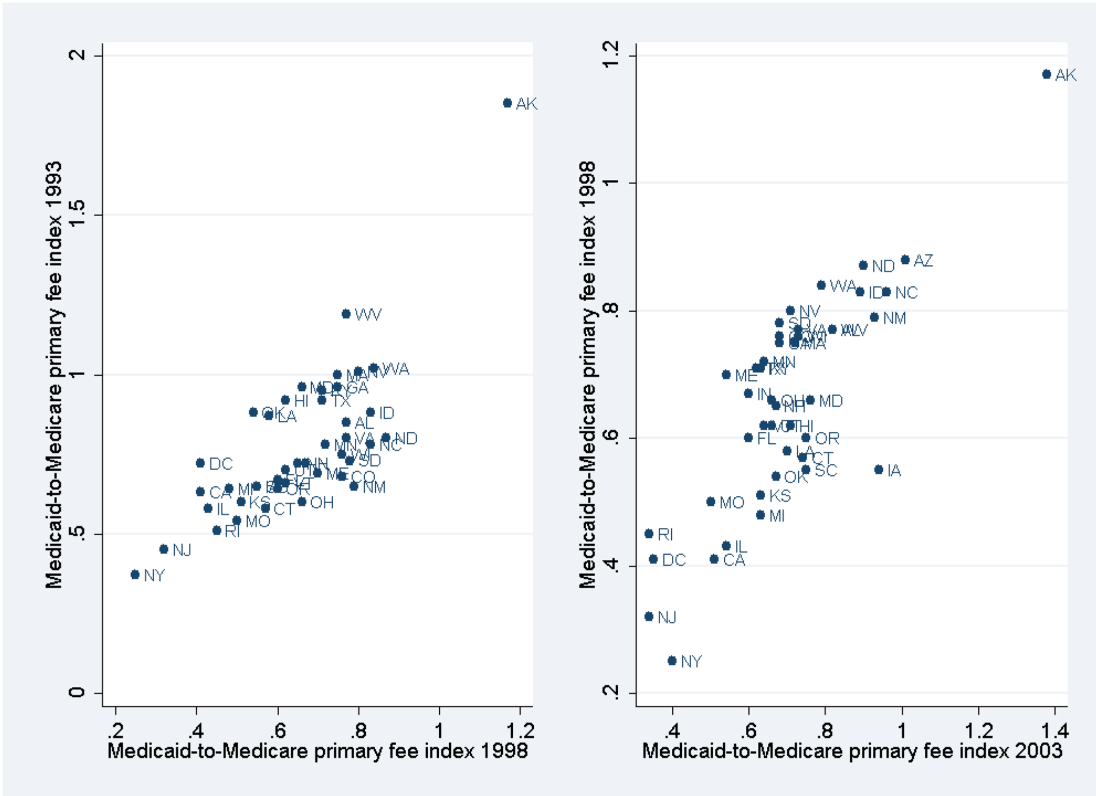

Figure 2: Medicaid-to-Medicare primary fee index in 1993, 1998, and 2003

Sources: Urban institute. See Norton (1995) for documentation for the 1993 index, Norton (1999) for 1998, and Zuckerman et al. (2004) for 2003. Medicaid-to-Medicare fee indexes were not available in several states. These states are: Tennessee in 2003, Arkansas, Delaware, Mississippi, Montana, Nebraska, Pennsylvania, Tennessee, and Wyoming in 1998 and Arizona and Tennessee in 1993.

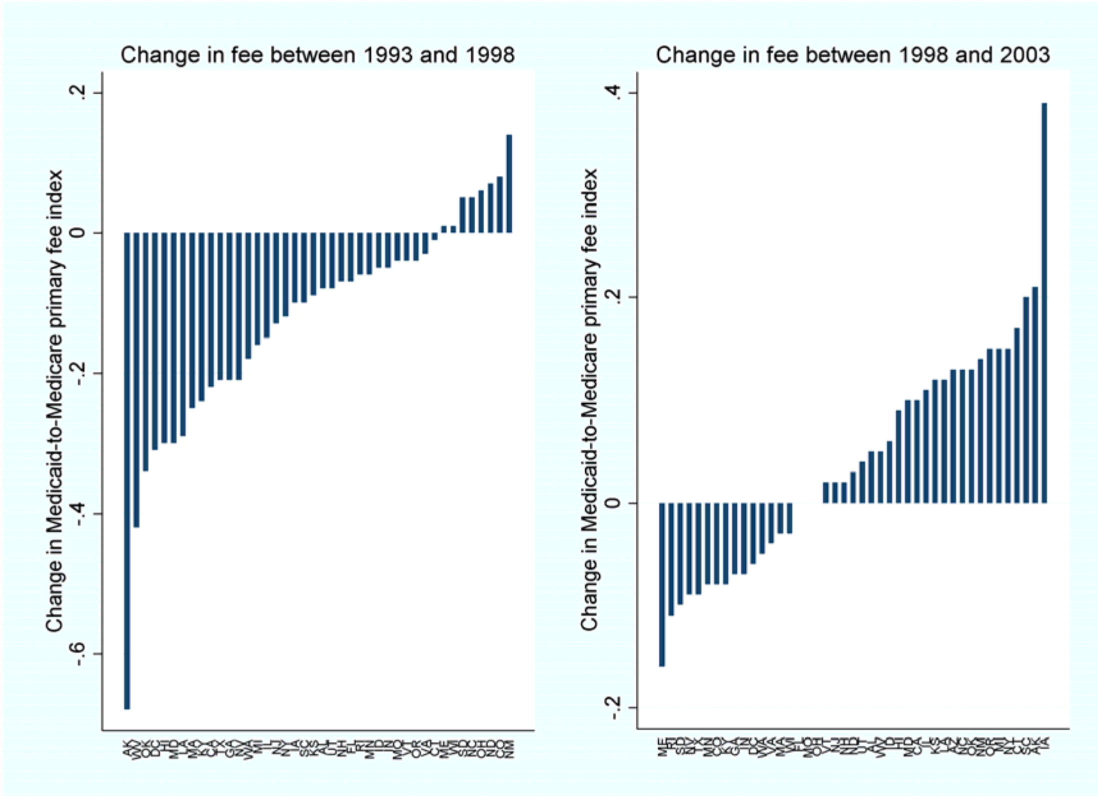

Figure 3: Changes in Medicaid-to-Medicare primary fee index

Sources: Urban institute. See Norton (1995) for documentation for the 1993 index, Norton (1999) for 1998, and Zuckerman et al. (2004) for 2003. Medicaid-to-Medicare fee indexes were not available in several states. These states are: Tennessee in 2003, Arkansas, Delaware, Mississippi, Montana, Nebraska, Pennsylvania, Tennessee, and Wyoming in 1998 and Arizona and Tennessee in 1993.

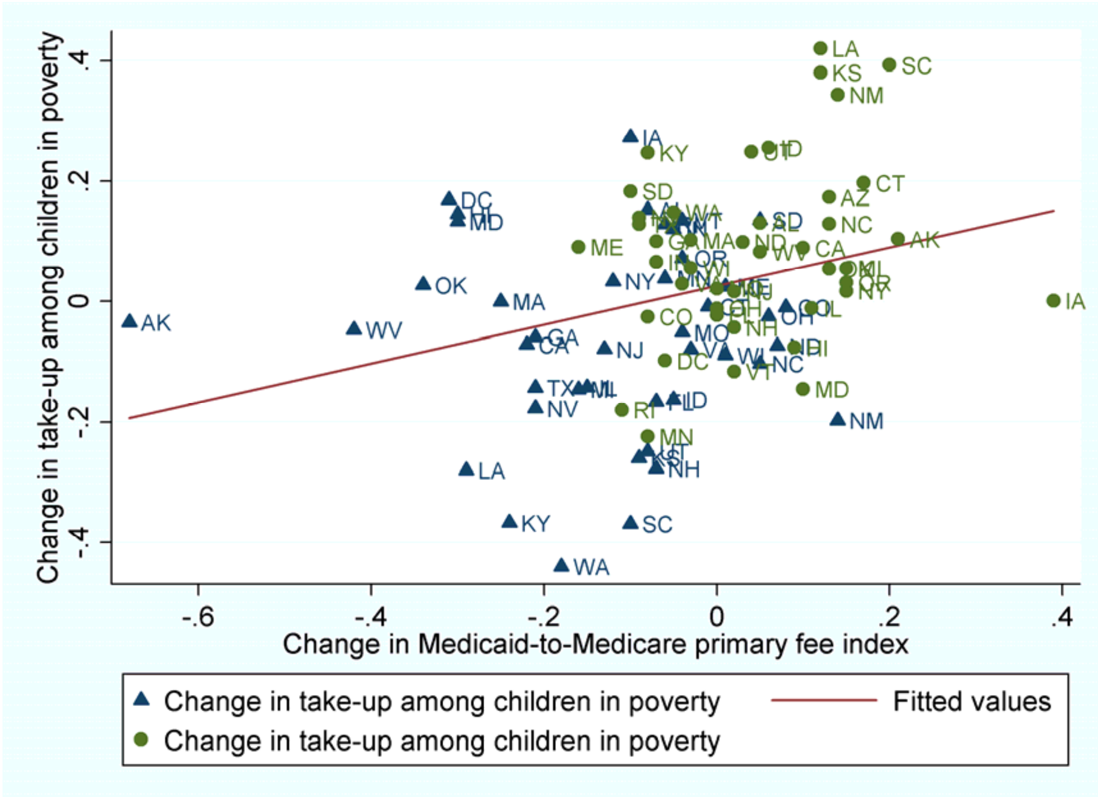

Figure 4: Changes in take-up and changes in the Medicaid-to-Medicare primary fee index

Notes: X-axis: Change in Medicaid-to-Medicare primary fee index. Y-axis: Change in the proportion of poor children who are on either Medicaid or SCHIP for each state. ▲: Changes between 1993 and 1998. ●: Changes between 1998 and 2003. Slope of the linear regression of change in take-up on change in Medicaid-to-Medicare primary fee index is 0.322 and standard error is 0.113.

Sources: Urban institute (Medicaid-to-Medicare primary fee index) and March Current Population Survey. See Norton (1995) for documentation for the 1993 index, Norton (1999) for 1998, and Zuckerman et al. (2004) for 2003. Medicaid-to-Medicare fee indexes were not available in several states. These states are: Tennessee in 2003, Arkansas, Delaware, Mississippi, Montana, Nebraska, Pennsylvania, Tennessee, and Wyoming in 1998 and Arizona and Tennessee in 1993.

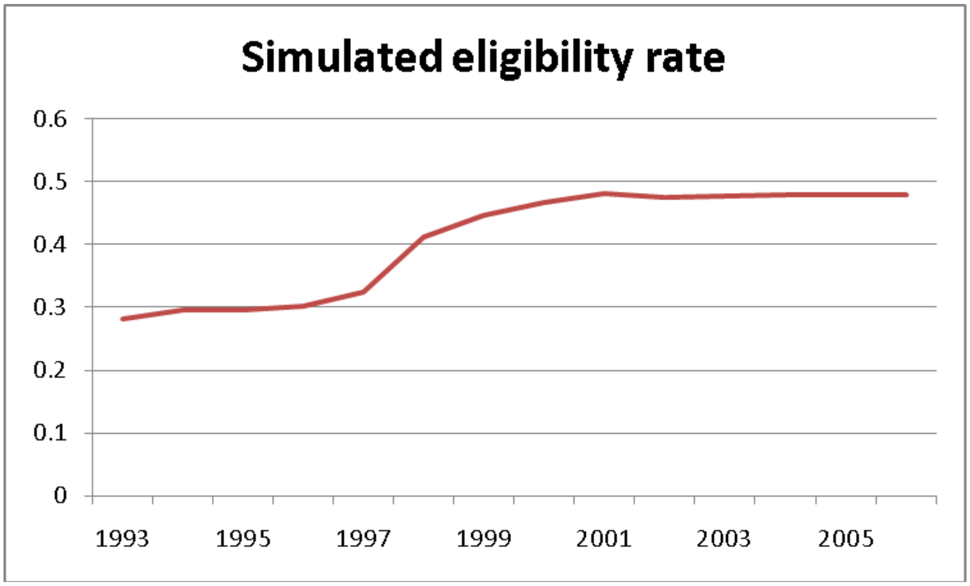

Figure 5: Simulated eligibility rate over time

Notes: Simulated eligibility rate is constructed by applying state's eligibility policy to a constant sample of children in 1993 for each age and calculating the fraction of eligible children. This in effect is the portion of children who would have been eligible had the population characteristics remained the same as those in 1993, and it captures how generous eligibility rule is in a given state, age and year. Eligibility policy may vary by state, age and year, and differential income eligibility cutoffs across these dimensions are a main source of variation in the generosity.

References

Aizer, Anna., 2007. Public Health Insurance, Program Take-up, and Child Health. *The Review of Economics and Statistics*, Vol. 89, No. 3. pp. 400-415.

Baker, Laurence C., Royalty, Anne Beeson., 2000. Medicaid Policy, Physician Behavior, and Health Care for the Low-Income Population. *The Journal of Human Resources*, Vol. 35, No. 3, pp. 480-502

Cantor, Joel C., Monheit, Alan C., Brownlee, Susan; Schneider, Carl. 2007. The Adequacy of Household Survey Data for Evaluating the Nongroup Health Insurance Market. *Health Services Research*. 42(4):1739-1757.

Cohen, J.W. 1989. Medicaid Policy and the Substitution of Hospital Outpatient Care for Physician Care. *Health Sciences Research* 24(1):34-66.

Cohen, Joel W. and P J Cunningham. 1995. Medicaid Physician Fee Levels and Children's Access To Care. *Health Affairs*, Vol 14, Issue 1, 255-262.

Community Tracking Study Household Survey Public Use File: Codebook, 2003, Technical Publication No. 59, Center for Studying Health System Change, Washington, D.C. (February 2005)

Currie, Janet and John Fahr. 2005. Medicaid Managed Care: Effects on Children's Medicaid Coverage and Utilization of Care. *Journal of Public Economics*, 89 #1, 85-108.

Currie, Janet, Jonathan Gruber and Michael Fischer. 1995. Physician Payments and Infant Health: Evidence from Medicaid Fee Policy. *American Economic Review*, Vol. 85, No. 2, pp. 106-111.

Decker, Sandra 2007. Medicaid Physician Fees and the Quality of Medical Care of Medicaid Patients in the USA. *Review of Economics of the Household*, 5:95.112.

Decker, Sandra 2009. Changes in Medicaid Physician Fees and Patterns of Ambulatory Care. *Inquiry* 46: 291-304.

Gertler, Paul, Luis Locay and Warren Sanderson. 1987. Are User Fees Regressive? The Welfare Implications of Health Care Financing Proposals in Peru. *Journal of Econometrics* 36, 67-88.

Gruber, Jonathan. 2000. Medicaid. NBER Working Paper: 7029, National Bureau of Economic Research, Inc.

Gruber, Jonathan., Adams, Kathleen., Newhouse, Joseph P., 1997. Physician Fee Policy and Medicaid Program Costs. The Journal of Human Resources, Vol. 32, No. 4, pp. 611-634

Gruber, Jonathan and Kosali Simon. 2008. Crowd-Out 10 Years Later: Have Recent Public Insurance Expansions Crowded Out Private Health Insurance? *Journal of Health Economics:* 27, pp. 201-217

Held, P.J., and Holahan, J. 1985. Containing Medicaid Costs in an Era of Growing Physician Supply. *Health Care Financing Review* 7(1):49-60

Holahan, John and Shinobu Suzuki. 2003. Medicaid Managed Care Payment Methods and Capitation Rates in 2001: Results of a New National Survey. Urban Institute.

Hudson, Julie L. and Thomas M. Selden. 2007. Children’s Eligibility and Coverage: Recent Trends and A Look Ahead. *Health Affairs*, Vol 26, no. 5, w618-w629

Kenney, Genevieve M. and Jennifer M. Haley, 2001. Why Aren't More Uninsured Children Enrolled in Medicaid or SCHIP? The Urban Institute, Series B, No. B-35.

King, Miriam, Steven Ruggles, Trent Alexander, Donna Leicach, and Matthew Sobek. Integrated Public Use Microdata Series, Current Population Survey: Version 2.0. [Machine-readable database]. Minneapolis, MN: Minnesota Population Center [producer and distributor], 2004. URL for the IPUMS-CPS site: http://cps.ipums.org/cps

Levine, Philip and Diane Schanzenbach. 2009. The Impact of Children’s Public Health Insurance Expansions on Educational Outcomes. *Forum for Health Economics and Policy* 12(1): Article 1.

Lo Sasso, Anthony and Thomas C. Buchmueller. 2004. The Effect of the State Children's Health Insurance Program on Health Insurance Coverage. *Journal of Health Economics*:23, pp. 1059-82.

Long, S., Settle, R., and Stuart, B. 1986. Reimbursement and Access to Physicians’ Services Under Medicaid. *Journal of Health Economics* 5(3):235-251.

McGuire, Thomas G. and Mark V. Pauly. 1991. Physician Response to Fee Changes with Multiple Payers. *Journal of Health Economics* 10, 385-410.

Public Citizen Report. Equal Pay for Equal Work? Not for Medicaid Doctors. HRG Publication #1822

Nyman, John. 1999. The Value of Health Insurance: the Access Motive. *Journal of Health Economics* 18, 141-152.

Norton, Stephen. 1995. Medicaid Fees and the Medicare Fee Schedule: An Update. *Health Care Financing Review*, 17(1):167-81

Norton, Stephen. 1999. Recent Trends in Medicaid Physician Fees, 1993-1998. *The Urban Institute Discussion Paper*, 99:12.

Perloff, Janet D., Philip R. Kletke, and James W. Fossett. 1995. Which Physicians Limit Their Medicaid Participation, and Why. *Health Services Research*. 30:1.

Perloff, Janet D., Philip R. Kletke, James W. Fossett, and Steven Banks. 1997. Medicaid Participation among Urban Primary Care Physicians. *Medical Care*. Volume 35, No 2. pp 142-157

Remler, D.K., J.E. Rachlin, Glied, S.A., 2001. What Can the Take-Up of Other Programs Teach Us About How to Improve Health Insurance Programs? NBER Working Paper #8185: Cambridge, Mass. National Bureau of Economic Research (NBER).

State Health Access Data Assistance Center and Robert Wood Johnson Foundation. 2007. Comparing Federal Government Surveys that Count Uninsured People in America, August 2007.

Yudkowsky, Beth K., Tang, S.S., Siston, Alicia M., 2000. Pediatrician Participation in Medicaid/SCHIP: Survey of fellows of the American Academy of Pediatrics. Division of Health Policy Research, American Academy of Pediatrics.

Zuckerman, Stephen, Joshua McFeeters, Peter Cunningham, and Len Nichols. 2004. Changes in Medicaid Physician Fees, 1998-2003: Implications for Physician Participation. *Health Affairs*, web exclusive, w4-w384.

Zuckerman, Stephen, Aimee F. Williams, and Karen E. Stockley. 2009. Trends in Medicaid Physician Fees, 2003-2008. *Health Affairs*, 28, no.3: w510-w519.