ACCESS TO CARE IN THE STATE CHILDREN’S HEALTH INSURANCE PROGRAM (SCHIP)

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ABSTRACT

The State Children’s Health Insurance Program (SCHIP) was clearly successful in reducing the number of uninsured children, but it is less clear how SCHIP affects children’s access to and utilization of health care services. This study used a modified difference-in-difference approach to examine the effect of SCHIP on children’s access to care. Data from Mississippi and Alabama were analyzed in 1997 before SCHIP funds were available to states and in 1999 when only Alabama had implemented a separate SCHIP program. Results indicate that SCHIP improved the number of children with a usual source of care by over five percentage points, while also decreasing the probability that a child used the emergency room. Interestingly, and contrary to theory, SCHIP also decreased the probability that a child saw a dentist. While these results generally support the intent of SCHIP, they also indicate some weaknesses in the program that should be further investigated as Congress prepares for SCHIP reauthorization in 2007.
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INTRODUCTION

Given the critical developmental stages of children, health care insurance is important to ensure that children have access to health care services whenever needed. In the American health care system, health insurance is strongly associated with access to health care services. Uninsured children are less likely to have physician contact, a regular doctor, a usual source of care, access to after-hours care, and more likely to forgo needed care (Newacheck, Stoddard, Hughes, & Pearl, 1998). Without access to health care services, the health of children may be severely, and unnecessarily, compromised. This is precisely why policymakers are concerned with providing affordable health insurance for low-income children, especially as the uninsurance rates for low-income children were on an upward move in the early 1990’s (National Center for Health Care Statistics, 2004).

Alarmed by such unacceptable rates, federal policy makers enacted Title XXI of the Social Security Act as part of the Balanced Budget Act of 1997. Title XXI created the State Children’s Health Insurance Program (SCHIP), designed to expand health insurance for uninsured children above Medicaid income eligibility levels. The SCHIP program was a new federal-state partnership, similar to Medicaid, which provided states with an annual capped allotment of federal matching funds.¹ Federal SCHIP expansion

¹ State allotments are calculated based on the “Number of Children” and “State Cost Factor”; from that states receive an “Enhanced Federal Medical Assistance Percentage” for qualifying purchases, pursuant to Section 2105(b) of the Social Security Act.
funds were to be used in addition to state funds to expand coverage toward uninsured, “targeted low-income children” (Centers for Medicare and Medicaid Services).²

In applying SCHIP funds to programmatic changes, states were given three options: (1) use Title XXI funds to expand Medicaid eligibility levels; (2) use Title XXI funds to design a separate program; or (3) use Title XXI funds and develop a combination of a Medicaid expansion and a separate SCHIP program. States were required to apply the federal Medicaid regulations to Medicaid-expansions, but were allowed to create an alternate benefit package and cost-sharing structure in separate SCHIP programs. As a result of this flexibility, there was great variation across states in the design and implementation of SCHIP programs. By 2000 every state and the District of Columbia had some sort of Title XXI expansion in place: 17 states implemented Medicaid-only expansions, 17 states created only separate SCHIP programs, and 17 states used a combination (Smith, Rousseau, & Guyer, 2001).

Throughout the late 1990’s, states implemented SCHIP programs, which were influential in reversing the uninsurance rate trend for low-income children (Dubay, Hill, & Kenney, 2002; National Center for Health Care Statistics, 2004) and in enrolling as many as 3.9 million low-income children in health insurance program (Smith & Rousseau, 2005). As a result, SCHIP has been declared a success (Mann, Guyer, & Alker, 2005), although admittedly more needs to be done for the 8.4 million children still uninsured, about 70% of which are probably eligible for Medicaid or SCHIP

²“Targeted low-income children” refer to uninsured children living in families with incomes below 200% of the Federal Poverty Guideline (FPL) or up to 50% more than their state’s Medicaid eligibility levels.
Other program improvements include eliminating barriers to enrollment while avoiding crowd out of private coverage,\(^3\) enrollment outreach,\(^4\) reducing gaps in coverage, and protecting public insurance programs from budget cuts (Cunningham, Reschovsky, & Hadley, 2002). Just as important as improving enrollment, there is an obligation to improve SCHIP by evaluating its impact on access to health care services, since enrollment in health insurance is beneficial only insomuch as health care services are readily available when necessary (in other words, only insomuch as services are accessible).

Investigating SCHIP’s impact on access to care is a challenging and uncommon undertaking. The objective of this study is to evaluate the effect of SCHIP on indictaors of access that have been analyzed previously in examining the impacts of Medicaid expansions. This paper will first discuss the important link between health insurance and access to health care services, as well as review the existing literature of SCHIP’s effect on access to care. The third section describes the data source while the fourth section outlines the research design. Section five describes the specification of the empirical model, and the results are reported and interpreted in section six. The final section concludes with a discussion of the implications of these findings for federal policymakers and SCHIP administrators.

\(^3\) Cunningham, et al. (2002) found that the net effect of decreases in children’s uninsurance rates is limited by the decline in private insurance, a phenomenon known as “crowd out”. Lo Sasso & Buchmueller (2004) found that barriers, such as a waiting period, are inversely related to private coverage crowd out, but in the absence of waiting periods, SCHIP enrollment would increase from 9% to 13%, with over 400,000 additional children enrolled.

\(^4\) Bansak & Raphael (2004) found that SCHIP take-up rates are low, ranging from 10.1 to 10.5 percent, with heterogeneity among states.
In a general sense, expanding insurance coverage appears to be more effective at improving access to care than expanding the supply of services, such as community health centers, since poor access to care is usually due to a lack of affordability, not a lack of doctors (Cunningham & Hadley, 2004). Insurance theory predicts that improved health insurance coverage translates into improved and appropriate access to care, however finding empirical evidence for this is a challenging undertaking. Foremost, this is because the construct “access” is somewhat elusive, both in difficulty of operationalization and in terms of available data. Furthermore, access is easily mistaken for utilization, and while the two constructs overlap in that utilization presumes access, there is a risk of over-utilization and moral hazard confusing the interpretation. For example, in one study of pre-SCHIP Medicaid expansions, making a child eligible for Medicaid decreased the probability of going without a doctor’s visit in the past year (an access issue) by 9.6 percentage points, but also increased the use of services (a utilization issue), such as hospitalizations (Currie & Gruber, 1996). Findings like these are alarming since the main intent of a program like SCHIP is to increase the proportion of children receiving health care services, not to increase the intensity of use for children already using services (Lave, Keane, Lin, & Ricci, 2002).

An innovative study investigating the impact of pre-SCHIP Medicaid expansions in the late 1980’s on children’s access to care found that Medicaid-expansion eligible children were 7.7 percentage points more likely to have a doctor’s
office visit but only slightly more likely to have a dental visit compared to children at
different eligibility levels, including the slightly higher-income, SCHIP-eligible
children\(^5\) (Banthin & Selden, 2003). Despite no statistically significant differences on
utilization measures and the percentage of children with a usual source of care, the
analysis clearly shows that SCHIP-eligible children would have greatly improved their
access to care if SCHIP-expansions had been implemented earlier (i.e., between 1987
and 1996). Armed with this logic, several researchers have attempted to understand the
effect of Title XXI expansion funds on access to care in specific state programs, for
specific services, and for specific groups of children. These studies, though limited in
scope, provide useful insight into the potential impact of SCHIP on access to health care
services.

*State-specific research*

Research on children enrolled in particular state SCHIP programs has been the
topic of many state evaluations, yet only a few studies have actually investigated
SCHIP’s impact on children’s access to care (Rosenbach, Ellwood, Irvin, Young,
Conroy, Quinn, & Kell, 2003). As these few state-specific studies generally suggest,
SCHIP seems to have had a positive impact on improving access to a usual source of
care, decreasing unmet need, and increasing the use of preventive services. Nonetheless,
there are still some obstacles that need to be addressed.

\(^5\) i.e., children in families living with incomes below 200% FPL but above pre-SCHIP Medicaid expansion levels
Colorado: Children enrolled in Colorado’s Child Health Plus Plan for one year had a 36% increase in usual source of care; a 13% increase in getting appointments for routine care visits; a 17% increase in accessing sick visits when needed; and a 67% increase in accessing specialty use when needed. Additionally, 44% of children still had unmet need, but only 19% had unmet need for services other than unmet dental care need. The percent of children with unmet mental health care need decreased 2 percentage points, while the percent of children with unmet eyeglasses need decreased 7 percentage points. Unmet prescription drug need decreased 10 percentage points, whereas unmet routine care need decreased 16 percentage points. Finally, although unmet dental care need decreased 9.5 percentage points, nearly 37% of children still had unmet dental need after being enrolled for one year (Kempe, Beaty, Crane, Stokstad, Barrow, Belman, & Steiner, 2005).

Iowa: After a year in Iowa’s hawk-i program, enrolled children had fewer emergency room visits and were more likely to have a personal doctor; less likely to delay getting need medical, specialty, dental, vision, mental health, and pharmaceutical care; more likely to have a usual source of dental care, but no more likely to receive preventive care services than one year earlier (Damiano, Willard, Momany, & Chowhurdy, 2003).

Kansas: Findings from an analysis of children enrolled in Kansas’ HealthWave program show that after one year of enrollment, the percent of children with a usual source of care increased (from 91.9% to 95.6%); while emergency room use as a regular
source of care decreased by 60%. The average number of doctor’s visits increased (from 1.62 to 3.26); while the percent of children receiving a physical exam increased (from 60.5% to 76.7%). The percentage of children with unmet need declined overall (from 51% to 16.5%), including reductions in children with unmet dental need (from 40% to 11.5%), unmet medical care need, unmet vision care need, and unmet prescription drug need (from 18%, 17%, and 14%, respectively, to 4% or less; Fox, Moore, Davis, & Heintzelman, 2003). Another study of Kansas’ SCHIP program found significant, but less sizeable, changes: children with unmet need decreased from 33% to 19% and children using preventive services increased from 64% to 72% (Dick, Brach, Allison, Shenkman, Shone, Szilagyi, Klein, & Lewit, 2004).

**New Jersey:** One year after enrollment, access and use improved significantly for those children covered by New Jersey’s FamilyCare program. After one year there was an increase in the percentage of children who received a physical exam (from 53% to 97%), received a dental check up (from 21% to 75%), and were up-to-date on their immunizations (from 79% to 97%). There was also a noticeable increase in the percentage of children with a usual source of care, or “medical home” (from 61% to 95%). Similarly, FamilyCare-enrolled children were more likely to have prompt access to care when ill (21% to 73%); to access sick care in a doctors office (72% to 96%) rather than an emergency room; and to always purchase medications (27% to 92%) prescribed by the child’s doctor (Southerland, Hart, & Atkins, 2002).
**New York:** New York’s SCHIP program has shown to have positive effects on access to care for enrolled children. Based on telephone interviews with parents of enrolled children, after one year of enrollment, the proportion of children with a usual source of care increased (from 86% to 97%), and the percent of children using their usual source of care for all or most of their visits, demonstrating continuity of care, also increased (from 47% to 89%). Outpatient use increased by 6.2 percentage points, the percent of children with any unmet need decreased (from 31% to 19%), and the percent of children with unmet need for specialty, acute, preventive, dental, vision, and emergency care each decreased by 9 to 15 percentage points. Furthermore, other access measures showed improvement: travel time decreased by 6 percentage points; difficulty getting a medical person on the phone decreased by 7.5 percentage points; and difficulty getting an appointment decreased by 7 percentage points. Interestingly, implementation of New York’s SCHIP program seemed to have the greatest impact on access to care for children living in families with incomes below 160% of poverty (Szilyagi, Dick, Klein, Shone, Zwanziger, & McInereny, 2004). A different study used survey data, but found similar results: after a year of enrollment, more children had a usual source of care (83% to 98%), children with any unmet need declined (32% to 20%), and the percent of children using preventive services increased (75% to 81%; Dick, et al., 2004).

**Ohio:** Based on site visit interviews, children in Ohio’s Healthy Start program generally had good access to care, regardless of fee-for-service or managed care
enrollment, except for dental services, which seems to be afflicted by supply and reimbursement issues (Irvin, Fasciano, & Rosenbach, 2004).

Service-specific research

Focusing on access to specific services provides similarly mixed results. In a study of children in 2002, publicly insured (i.e., Medicaid and SCHIP) children had the highest prevalence of mental health problems and 13% more use of mental health services than children in other insurance (and higher-income) groups. But for children with mental health problems, mental health service use did not differ by income type and mental health services are generally underutilized across insurance types (Howell, 2004). In a different study, SCHIP seems to have increased the probability of a child having a varicella (chickenpox) vaccination, but overall immunization rates also increased for all income groups over the same time period. Interestingly, that same study found that the proportion of SCHIP children receiving immunizations from a single provider decreased, which is either a function of the immunization schedule or a lack of evidence in support of SCHIP improving access to care through a “medical home” (Joyce & Racine, 2005). Finally, when states have chosen to offer dental benefits, they have offered comprehensive, low cost dental care (Almeida, Hill, & Kenney, 2001), and have thus improved the proportion of children with a usual source of dental care (Lave, et al., 2002), however, there is wide variation among dental benefits offered among states, some dental provider supply issues, and significant
unmet dental need for low-income children is still a dilemma (Shulman, Kell, & Rosenbach, 2004).

Subgroup-specific research

Research has also focused on the impact of SCHIP on specific populations of children. For example, a study of SCHIP-enrolled adolescents found that many SCHIP programs were not necessarily designed with adolescents in mind (Fox, McManus, & Limb, 2003), and as a result SCHIP adolescents may have difficulty accessing dental care, mental health care, and some prescription drugs (Fox, McManus & Limb, 2000b). However the overall impact of SCHIP on adolescents is generally positive as there was an increase in the percentage of adolescents identifying a usual source of care (from 82% to 88%) and using preventive services (from 71% to 79%) in Florida’s SCHIP program. Similarly, there was an increase in the percentage of adolescents with a usual source of care (from 78% to 95%), and an increase in the percentage of adolescents using preventive services (from 60% to 73%), and a decline in the percentage of adolescents with any unmet need (from 37% to 21%) in New York’s SCHIP program (Dick, et al., 2004; VanLandeghem & Brach, 2004).

Several studies have focused on access to care for children with special health care needs (CSHCN), who are some of the most vulnerable children served by Medicaid and SCHIP since they require more health care services than the average child. Insurance of any type has been found to improve access to care for CSHCN (Newacheck, McManus, Fox, Hung, & Halfon, 2000), although CSHCN enrolled in
SCHIP report having more difficulty assessing care, especially specialty services (Fox, McManus, & Limb, 2000a). Most CSHCN report having a usual source of care, but many CSHCN also have unmet need (Szilagyi, Shenkman, Brach, LaClair, Swigonski, Dick, Shone, Shaffer, Col, Eckert, Klein, & Lewit, 2003), and observed declines in unmet need for CSHCN have mostly been due to declines in unmet dental care need, not other service needs (Davidoff, Kenny, & Dubay, 2005).

In all, the existing body of evidence of SCHIP’s impact on access to care is positive, but not overwhelming. In fact, a Congressionally mandated evaluation of SCHIP could only conclude that SCHIP provided “apparently good access to care” (Wooldridge, Hill, Harrington, Kenney, Hawkes, & Haley, 2003). But, it has been notoriously difficult to detect a national effect on access to care in SCHIP (Dubay, 2005). Part of this problem is determining an adequate control group for quantitative analysis. Nearly all of the studies discussed above are descriptive in nature and thus focus on SCHIP-enrolled children. And although administrators are concerned with enrolled children, the effects from studies exclusively of enrolled children may be biased by selection issues in that children already enrolled may possess certain characteristics that make them more likely to obtain health insurance and more actively seek out health care. Other studies have compared SCHIP-eligible children to higher-income children. Because low-income children are significantly different from children in middle and upper income families, such a comparison is inappropriate in evaluating program effects. Finally, due to wide variation in state SCHIP program designs,
implementation schedules, and general needs, comparing program effects across states must be done carefully.

From a policy perspective, it is important to understand if programs, like SCHIP, are effective and where deficiencies, if any, exist. To mediate the endogenous factors discussed above that have plagued prior studies, this study will examine SCHIP’s access to care in a unique way that controls for differences across individuals, time, and space. The statistical method, discussed below, allows for the isolation of SCHIP program effects on access to care that can be considered to meet assumptions of random assignment, and therefore can be generalized to the SCHIP program as a whole. If the SCHIP program does significantly improve children’s access to health care, as this paper hypothesizes, then SCHIP can truly be declared a national success, where continued support and funding will be justified.

**Research Design**

This study will exploit the natural variation in state implementation schedules by using a modified difference-in-difference approach to evaluate the impact of SCHIP expansions on access to health care for low-income children. In the purest evaluation of program effects, participants should be randomly assigned to receive a treatment. In the case of SCHIP, it would be unethical and politically unfeasible to randomly assign health insurance to some low-income, uninsured children and not others. Yet since in-depth household data is available from 1997 and 1999, and by using natural differences

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6 i.e., unobservable characteristics that influence a child’s access to health care (other than the SCHIP program).
in states’ implementation of SCHIP programs, a natural experiment is created. This allows analyses to be conducted on children living in states with expeditious SCHIP implementation (i.e., before 1999) and children living in states that moved more slowly in SCHIP implementation (i.e., after 1999) as if they had been randomly assigned to receive SCHIP coverage (i.e., the treatment). For these purposes, this study will focus on two southern states: Alabama and Mississippi.

Alabama and Mississippi were chosen for their population similarities, and more importantly, their dissimilar SCHIP experiences. Before Title XXI funds were available, Alabama and Mississippi were quite similar in their Medicaid programs: infants were covered up to 133% FPL in Alabama and up to 185% FPL in Mississippi; children under age six were covered up to 133% FPL and children 6-14 were covered up to 100% FPL in both states; and children above 14 years old were covered up to 15% FPL in Alabama and 34% FPL in Mississippi (National Governor’s Association, 1997). When Title XXI funds became available, both states moved rather rapidly in expanding Medicaid eligibility for older children to 100% FPL; Alabama did so in February 1998 and Mississippi did so in July 1998. But this is where the two states differ: Alabama created a separate SCHIP program for uninsured children up to 200% FPL in October 1998, but Mississippi did not implement a separate SCHIP program until January 2000 (Smith, et al., 2001).

The dissimilar SCHIP experiences between the states and the timing of the data collection allows for examination of SCHIP access effects by comparing children in
Alabama and Mississippi in 1997, before any expansions took place, and then in 1999, when only children in Alabama had a SCHIP program in which to enroll (i.e., children “assigned” to the treatment). Since endogenous differences are controlled for in this scenario, the following analysis will attempt to isolate the effect of SCHIP on access to care. Given the importance of insurance on access to care, it is therefore predicted that SCHIP will improve children’s access to health care services, and more specifically that children in Alabama in 1999 will have improved measures of access to care, relative to children in Mississippi.

Methodology

Data will be analyzed using an econometric technique used with natural experiments known as the difference-in-difference (DD) approach. In a DD model, two groups are analyzed over time as if they were randomly assigned to receive a treatment or not. This approach is akin to a natural experiment. The DD model compares the difference in mean program effects (i.e., the average effect of a policy/program change on affected groups) with the mean difference in time effects (i.e., the average change in a particular group over time). In the context of this study, the DD model will estimate the mean differences in access measures of children across states (program effects), or between children in Mississippi (i.e., the control group with no SCHIP program) and children in Alabama (i.e., the treatment group with SCHIP program), and across points in time (time effects) before SCHIP implementation (i.e., 1997) and after SCHIP implementation (i.e. 1999). In other words, the DD estimate will calculate the difference
of the mean difference in children in Alabama between 1997 and 1999 with the mean
difference in children in Mississippi between 1997 and 1999. The DD model is
mathematically represented as:

\[(AL_{1999} - AL_{1997}) - (MS_{1999} - MS_{1997}) = (AL_{1999} - MS_{1999}) - (AL_{1997} - MS_{1997})\]

The DD model will be analyzed in two ways: the simple DD of raw sample frequencies,
and the DD estimator in an adjusted linear probability model (LPM) regression. The
adjusted DD estimator is simply an interaction of time and state in a regression equation
represented as:

\[DV = \delta_0 + \beta_1 AL + \beta_2 YR + \beta_3 DD + \delta_4 X + u\]

where: \(DV\) = access and utilization outcome measures
\(AL\) = 1 if child lives in Alabama
\(YR\) = 1 if observations is from 1999
\(DD\) = 1 when \(AL = 1\) and \(YR = 1\) (or \(AL^*YR\))
\(X\) = conglomerate of exogenous control variables

Since difference-in-difference estimates are difficult to isolate, a modified
difference in difference model is estimated as well. In the modified DD model, the type
of insurance status is included in the specification along with interaction variables
between insurance coverage and the DD estimator. This approach was used by Gavin,
Farrelly, & Simpson (1998) in their study evaluating the effects of the implementation
of Medicaid managed care programs in Florida and New Mexico.
Data

Data for this project came from the National Survey of America’s Families (NSAF) collected by the Urban Institute as part of their Assessing the New Federalism project. The NSAF collects household survey data nationally and in 13 focal states, allowing for national estimates, with intentional over-sampling of low-income families. The data in the Focal Child Public Use Data File comes from NSAF questions about a sampled child’s education, child care, and health in the past year, plus critical corresponding household-level information, such as family income and living arrangements. This project’s objective is to analyze the sample of children to determine the effect of SCHIP implementation, not to make point-in-time estimates about children in SCHIP. To accomplish this, two NSAF Focal Child data sets will be used: 1997 data collected between February and November 1997, before any SCHIP programs were implemented (Wigton, Scheuren, Wenck, Zhang, Nooter, & Smith, 2000); and 1999 data collected between February and October 1999, after Alabama had fully implemented its separate SCHIP program, but before Mississippi had implemented theirs (Converse, Safir, & Scheuren, 2001). The convenient timing of NSAF data

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7 The NSAF focal states include Alabama, California, Colorado, Florida, Massachusetts, Michigan, Minnesota, Mississippi, New Jersey, New York, Texas, Washington, and Wisconsin.
8 NSAF Public Use Data Files are available online at http://www.urban.org/center/anf/nsaf.cfm
9 For national children’s insurance estimates using the NSAF, see Brennan, Holahan, & Kenney (1999); Almeida & Kenney (2000); and Kenney, Dubay, & Haley (2000).
10 By the time 1999 NSAF data collection was complete, Alabama had implemented both a Medicaid expansion (February 1998) and a separate SCHIP program (October 1998), whereas Mississippi had implemented the Medicaid expansion portion of their SCHIP plan (July 1998), but had not yet implemented a separate SCHIP program (January 2000).
collection allows for the analysis of a natural experiment created by state choices in SCHIP implementation.

Sample Construction

Due to the natural variation in SCHIP implementation, this analysis is restricted to children living in either Alabama or Mississippi. The 1997 NSAF surveyed 2,098 and 1,984 children and the 1999 NSAF surveyed 1,827 and 1,734 children in Alabama and Mississippi, respectively. However, since federal SCHIP funds were only available for “targeted low-income” children, and since both Alabama and Mississippi raised income eligibility thresholds to 200% FPL, the sample was restricted to low-income children. Therefore, children in households with incomes above 200% FPL, using the Current Population Survey (CPS) definition of a household to calculate income, are excluded from the sample. Children in foster or kin care are excluded from the sample because children in foster care or adoption assistance are already a mandatory Medicaid covered group and are not impacted by SCHIP expansions. Additionally, children enrolled in Medicare or other, unspecified forms of insurance were also excluded so that only children potentially impacted by SCHIP (i.e., those with Medicaid/public insurance, employer/private insurance, or uninsured) were included in the sample. The final sample sizes are reported in Table 1.

Outcome Measures

In addition to health insurance status, the NSAF collects information on a child’s access to and utilization of health care services. A series of specific insurance
coverage questions are asked during the survey, including if the child had
“Medicaid/SCHIP/other state coverage.” Having a usual source of care (USC) is a
typical indicator of access to care, since it implies a sense of continuity and personal
relationships with a health care provider. Because part of the SCHIP initiative was to
reduce improper utilization of emergency services by uninsured families, a child is
considered not to have a USC if they reported the emergency room as their USC or if
they reported they did not have a USC. Utilization variables include the number of
doctor visits, the number of dental visits, the number of health professional visits, the
number of mental health visits, the number of well child care visits, the number of
emergency room visits, and whether or not the child was hospitalized overnight. All
utilization variables will be analyzed as binary variables, that is, whether or not the
child received the service, rather than the frequency of service usage. Unmet need is
also measured as whether or not the child postponed needed medical, dental, or
pharmacy care, or in other words, if the child needed medical, dental, or pharmacy care
but did not get it.

Using the DD approach in regression analysis allows for the adjustment of the
DD estimator to control for other exogenous variation that could potentially affect a
child’s access to and utilization of health care services. Other control variables include
the child’s age, gender, race/ethnicity, place of birth, living arrangement, current health
status, and current health insurance status. There is also an indicator if the child has
special health care needs (CSHCN), determined by whether the child had a health
condition that limits their activity over a period of time. Parent characteristics, such as education, employment, and marital status are also controlled for.

RESULTS

As shown in Table 1, children in the sample look relatively similar across states, and by year, for the distribution of demographic factors such as age, gender, race/ethnicity, and citizenship. Because these factors are completely unaffected by the SCHIP program, this similarity provides some evidence that using the Mississippi sample as a control group for the Alabama sample is appropriate. This sample confirms the well documented success of SCHIP in reducing uninsurance rates for low-income children, and thereby increasing public insurance rates. Between 1997 and 1999, and as a result of the SCHIP program, the proportion of children in the sample with public insurance increased by 7.5 percentage points in Alabama, but by only 2.8 percentage points in Mississippi. Consequently, the uninsurance rate decreased by eight percentage points in the Alabama sample, whereas the uninsurance rate dropped by four percentage points in the Mississippi sample. These findings, though positive, may reflect improvements through Title XXI-funded Medicaid expansions rather than a separate SCHIP program, per se, since Mississippi had already implemented a Medicaid expansion (using SCHIP funds) by the time data was collected in 1999.

From the simple difference-in-difference estimates presented in the last column of Table 2, there are some interesting differences in children’s health care access and utilization trends across the two states. However, of the eleven outcome variables
measured, only one was statistically significant. Between 1997 and 1999, the proportion of children reporting a usual source of care (other than the emergency room) increased in Alabama, but actually decreased in Mississippi. In essence, the SCHIP program increased the percentage of children with a usual source of care by 5.24 percentage points. The analyses were also conducted using the adjusted DD model, which includes several control variables, however, the adjustments did not add predictive value to the coefficient estimates and were not statistically significant.

The alternative model, which includes insurance status indicators, produced more extensive results, which are presented in Table 3. Relative to uninsured children in Mississippi in 1997, publicly insured children in Alabama in 1999 were almost 17 percentage points more likely to have a usual source of care, and over 11 percentage points less likely to have had an emergency room visit. Interestingly, publicly insured children in Alabama in 1999 were 12 percentage points less likely to have had a dental visit, compared to uninsured children in Mississippi in 1997. When covariates were added to the model, the likelihood of having a usual source of care increased to almost 18 percentage points while the likelihood of having a dental visit decreased to 16 percentage points, all else being equal. The adjusted coefficient estimate for the likelihood of having an emergency room visit was not statistically significant.

Methodologically speaking, the experience in Mississippi represents the counterfactual, or what would have happened in the absence of the SCHIP program. Therefore, to examine SCHIP program effects, the most appropriate comparison group
for the SCHIP-treatment children (i.e., publicly insured children in Alabama in 1999),
are publicly insured children in Mississippi in 1999, who were not exposed to a separate
SCHIP program expansion. Table 4 presents predicted probabilities calculated from the
alternative model coefficient estimates. For publicly insured children, the probability of
having a usual source of care was 0.91 in Mississippi and over 1.0 in Alabama.
Conversely, for publicly insured children in 1999, the probability of having an
emergency room visit was 0.48 in Mississippi, but only 0.37 in Alabama. Finally, the
predicted probability of having one or more dental visit was 0.57 for publicly insured
children in Mississippi, yet only 0.40 for publicly insured children in Alabama.
Therefore, the SCHIP program increases the probability of a child having a usual source
of care, while decreasing the probability of a child using the emergency room and,
unexpectedly, the probability of a child having a dental visit.

DISCUSSION

It is well documented that Congressionally-appropriated funding for the State
Children’s Health Insurance Program (SCHIP) has decreased the number of uninsured
children, but it is often just assumed that health insurance coverage actually translates
into improved health care access. In light of the sparse existing literature that evaluates
the effect of SCHIP programs on access and utilization, this study sought a purer
comparison group, and has indeed found some interesting results. The basic difference-
in-difference estimates, which wash out state and time effects, generally portray the
expectations of SCHIP policymakers: more children had a usual source of care; rates of
children’s usage of services for all services, except emergency room use, increased; and unmet need declined, except for dental need (dental care issues are discussed below). In fact, it can be stated that SCHIP significantly increased the percent of children with a usual source of care other than the emergency room by over 5 percentage points.

Because SCHIP is a type of insurance product, when insurance status is controlled for, a more refined picture emerges, further suggesting the success of the SCHIP program. Compared to children who were not exposed to a separate SCHIP program expansion, SCHIP increased the probability of having a usual source of care other than the emergency room, while decreasing the probability of using the emergency room. This is precisely the result that insurance theory predicts and that policymakers intended. The objective of SCHIP was not just to provide uninsured, low-income children with insurance coverage, but to change the site of where they receive health care services. These findings suggest that as more children have access to a usual source of health care, there is less usage of emergency room services because children have a more appropriate setting to receive the majority of their care. By re-directing care to more appropriate settings, children receive better quality and more continuous care; the burden on emergency rooms is lessened; and potential cost savings can be realized by the health care system overall.

Contrary to expectations, however, the findings suggest that SCHIP actually reduced a child’s probability of a child having a dental visit. While this is not encouraging, it may speak to a broader supply issue addressed in previous studies. Most
likely due to low provider reimbursement rates or to the geographic service area, many public health insurance programs have difficulty getting dental providers to participate. To account for dentist supply problems, measures of physician supply and urbanicity were included as control variables in the theoretical model. However, one major methodological limitation of this study is that although Alabama and Mississippi are quite similar, some geographic variation is expected, but the data on these measures were not available or discernable from the NSAF for use as control variables in the empirical model.

It is understood that dependent variables are often affected by some variables in addition to the specific ones of interest. For example, SCHIP participation was the variable of interest, but whether or not a child actually sees a dentist is also likely to be affected by a child’s age, since infants and toddlers are not likely to need or use dental services, and would thus ideally be controlled for in any econometric analysis. However, in this study when such control variables, like age, sex, race/ethnicity, health status, and parent characteristics were added to the model, fewer significant differences appeared. This suggests that while health insurance like the SCHIP program is important, other factors, generally age, health status, and parent education, explain much of the variance observed in access measures.

Despite some limitations, these findings can still be useful in informing policy, especially given that SCHIP is up for Congressional reauthorization in 2007. As discussed before, access is a difficult construct to evaluate, but the results presented
here suggest that improvements in children’s access to health care were, in fact, achieved. Even though the separate SCHIP program in Alabama was still relatively new when the 1999 data was collected, significant differences were seen over time and relative to the experience of Mississippi, which had not yet implemented a separate SCHIP program at the time of data collection. However, partially offsetting the SCHIP effect is the fact that during the study period, Mississippi had used some Title XXI funds to expand their Medicaid program. And although Alabama also expanded their Medicaid program, the magnitude of the measured “SCHIP effect” may be slightly diminished. Yet the data were analyzed based on the type of insurance (e.g., public insurance vs. uninsured), not the type of program (i.e., not Medicaid vs. SCHIP), and therefore any improvements that occurred as a result of Title XXI funding were accounted for in the analysis. The findings reported here offer some valuable information for Congressional policymakers as it demonstrates that federal funds made available to states through Title XXI were appropriately and successfully used to decrease the uninsurance rate of low-income children, while also improving their access to care.

Future research should continue to evaluate the efficacy and efficiency of the SCHIP program, given its unique federal-state financing arrangement, the low-income population it serves, and the variation among states in program design and implementation. Program evaluations should be designed with an appropriate control group so that results can be generalized to the national SCHIP program as a whole, as
this study attempted to do, rather than simply a description of a state’s specific SCHIP program. Furthermore data should also be collected on a broad array of variables that may influence a child’s access to and utilization of health care, including child demographic, household-level, and supply variables, in order to better understand how individual and family characteristics affect health care access. It may also be useful to collect data in a way that allows for an analysis of children by eligibility category or specific income level. Finally, the problems with dental access and the supply of dental providers should be explored to better understand the underlying reasons for the observed, but unexpected, dental care trends in SCHIP.
<table>
<thead>
<tr>
<th></th>
<th>1997</th>
<th>1999</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Alabama</td>
<td>Mississippi</td>
</tr>
<tr>
<td>Sample size (N)</td>
<td>1,043</td>
<td>1,095</td>
</tr>
<tr>
<td>Age (mean years)</td>
<td>8.13</td>
<td>8.17</td>
</tr>
<tr>
<td>Male</td>
<td>52.06%</td>
<td>50.14%</td>
</tr>
<tr>
<td>White, non-Hispanic</td>
<td>53.50%</td>
<td>42.05%</td>
</tr>
<tr>
<td>Non-White, non-Hispanic</td>
<td>44.10%</td>
<td>56.58%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>2.40%</td>
<td>1.37%</td>
</tr>
<tr>
<td>U.S. born¹¹</td>
<td>99.90%</td>
<td>99.01%</td>
</tr>
<tr>
<td>Poor or fair health status</td>
<td>7.48%</td>
<td>7.21%</td>
</tr>
<tr>
<td>Child has special health care need</td>
<td>11.03%</td>
<td>9.59%</td>
</tr>
<tr>
<td>Child currently uninsured</td>
<td>23.01%</td>
<td>28.77%</td>
</tr>
<tr>
<td>Child currently has public insurance</td>
<td>30.58%</td>
<td>28.49%</td>
</tr>
<tr>
<td>Child lives with two biological or adoptive parents</td>
<td>37.39%</td>
<td>36.71%</td>
</tr>
<tr>
<td>Parent is married</td>
<td>48.13%</td>
<td>47.12%</td>
</tr>
<tr>
<td>Parent works</td>
<td>44.77%</td>
<td>48.49%</td>
</tr>
<tr>
<td>Parent’s highest degree is a GED or high school diploma</td>
<td>77.09%</td>
<td>78.45%</td>
</tr>
</tbody>
</table>

¹¹ U.S. born does not include foreign-born but U.S. naturalized persons
Table 2
Sample Differences in Children’s Access and Utilization Measures

<table>
<thead>
<tr>
<th></th>
<th>1997 AL</th>
<th>1997 MS</th>
<th>'97 diff.</th>
<th>1999 AL</th>
<th>1999 MS</th>
<th>'99 diff.</th>
<th>DD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample size (N)</td>
<td>1,043</td>
<td>1,094</td>
<td>-</td>
<td>769</td>
<td>802</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Has a usual source of care other than the emergency room</td>
<td>86.48%</td>
<td>89.41%</td>
<td>-2.93%</td>
<td>89.47%</td>
<td>87.16%</td>
<td>2.31%</td>
<td>5.24%*</td>
</tr>
<tr>
<td>Had one or more doctor visit last year</td>
<td>66.54%</td>
<td>59.18%</td>
<td>7.36%</td>
<td>72.04%</td>
<td>60.22%</td>
<td>11.82%</td>
<td>4.46%</td>
</tr>
<tr>
<td>Had one or more well child care visit last year</td>
<td>55.42%</td>
<td>47.85%</td>
<td>7.57%</td>
<td>62.03%</td>
<td>53.87%</td>
<td>8.16%</td>
<td>0.59%</td>
</tr>
<tr>
<td>Had one or more health professional visit last year</td>
<td>24.26%</td>
<td>29.22%</td>
<td>-4.96%</td>
<td>32.77%</td>
<td>35.91%</td>
<td>-3.14%</td>
<td>1.82%</td>
</tr>
<tr>
<td>Had one or more dental visit last year</td>
<td>51.39%</td>
<td>56.16%</td>
<td>-4.77%</td>
<td>53.06%</td>
<td>53.87%</td>
<td>-0.81%</td>
<td>3.96%</td>
</tr>
<tr>
<td>Had one or more mental health visit last year</td>
<td>4.70%</td>
<td>5.30%</td>
<td>-0.60%</td>
<td>6.24%</td>
<td>4.49%</td>
<td>1.75%</td>
<td>2.35%</td>
</tr>
<tr>
<td>Had one or more emergency room visit last year</td>
<td>37.30%</td>
<td>35.53%</td>
<td>1.77%</td>
<td>33.16%</td>
<td>33.79%</td>
<td>-0.63%</td>
<td>-2.40%</td>
</tr>
<tr>
<td>Was in the hospital overnight last year</td>
<td>8.82%</td>
<td>9.22%</td>
<td>-0.40%</td>
<td>11.31%</td>
<td>9.73%</td>
<td>1.58%</td>
<td>1.98%</td>
</tr>
<tr>
<td>Postponed medical care last year</td>
<td>3.74%</td>
<td>2.92%</td>
<td>0.82%</td>
<td>4.42%</td>
<td>4.36%</td>
<td>0.06%</td>
<td>-0.76%</td>
</tr>
<tr>
<td>Postponed dental care last year</td>
<td>7.19%</td>
<td>7.03%</td>
<td>0.16%</td>
<td>9.62%</td>
<td>8.85%</td>
<td>0.77%</td>
<td>0.61%</td>
</tr>
<tr>
<td>Postponed pharmacy care last year</td>
<td>2.78%</td>
<td>2.47%</td>
<td>0.31%</td>
<td>3.38%</td>
<td>4.99%</td>
<td>-1.61%</td>
<td>-1.92%</td>
</tr>
</tbody>
</table>

Note: An asterisk (*) denotes statistical significance at $p < 0.05$
Table 3
Coefficient Estimates from Alternative Model for Select Outcome Measures

<table>
<thead>
<tr>
<th>Variable</th>
<th>Probability that child has usual source of care</th>
<th>Probability that child has an emergency room visit</th>
<th>Probability that child has one or more dental visit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child is publicly insured</td>
<td>0.0718*</td>
<td>0.1708*</td>
<td>0.1399*</td>
</tr>
<tr>
<td></td>
<td>0.0167</td>
<td>0.0229</td>
<td>0.0247</td>
</tr>
<tr>
<td>Child is privately insured</td>
<td>0.0918</td>
<td>-0.0084</td>
<td>0.1547</td>
</tr>
<tr>
<td></td>
<td>0.0149</td>
<td>0.0200</td>
<td>0.0221</td>
</tr>
<tr>
<td>Child lives in Alabama</td>
<td>-0.0339*</td>
<td>0.0144</td>
<td>-0.0504*</td>
</tr>
<tr>
<td></td>
<td>0.0141</td>
<td>0.0206</td>
<td>0.0224</td>
</tr>
<tr>
<td>Observation from 1999</td>
<td>-0.0258</td>
<td>-0.0220</td>
<td>-0.1380*</td>
</tr>
<tr>
<td></td>
<td>0.0150</td>
<td>0.0218</td>
<td>0.0233</td>
</tr>
<tr>
<td>Child lives in Alabama in 1999</td>
<td>-0.0792</td>
<td>0.0593</td>
<td>0.0653</td>
</tr>
<tr>
<td></td>
<td>0.0468</td>
<td>0.0536</td>
<td>0.0557</td>
</tr>
<tr>
<td>Child lives in Alabama in 1999 and is publicly insured</td>
<td>0.1689*</td>
<td>-0.1143*</td>
<td>-0.1234*</td>
</tr>
<tr>
<td></td>
<td>0.0454</td>
<td>0.0573</td>
<td>0.0586</td>
</tr>
<tr>
<td>Child lives in Alabama in 1999 and is privately insured</td>
<td>0.1350</td>
<td>-0.1006</td>
<td>0.0211</td>
</tr>
<tr>
<td></td>
<td>0.0046</td>
<td>0.0529</td>
<td>0.0553</td>
</tr>
<tr>
<td>Child lives in Mississippi in 1997 and is uninsured (constant)</td>
<td>0.8378*</td>
<td>0.3099*</td>
<td>0.5704*</td>
</tr>
<tr>
<td></td>
<td>0.0138</td>
<td>0.0187</td>
<td>0.0208</td>
</tr>
</tbody>
</table>

Note: Standard errors are reported in italics directly below the coefficient estimate.
Note: An asterisk (*) denotes statistical significance at $p < 0.05$
<table>
<thead>
<tr>
<th>Publicly insured children in Mississippi, 1999</th>
<th>Probability that child has usual source of care</th>
<th>Probability that child has an emergency room visit</th>
<th>Probability that child has one or more dental visit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.9096</td>
<td>0.4807</td>
<td>0.5723</td>
</tr>
<tr>
<td>Publicly insured children in Alabama, 1999</td>
<td>1.00</td>
<td>0.3664</td>
<td>0.3985</td>
</tr>
</tbody>
</table>
REFERENCES


Dubay, L. (2005, October 11). Personal e-mail communication.


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