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State Children's Health Insurance Program: Participation Decision and Labor Supply Effects

Kyoungwoo Lee

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STATE CHILDREN'S HEALTH INSURANCE PROGRAM:

PARTICIPATION DECISION AND LABOR SUPPLY EFFECTS

BY

KYOUNGWOO LEE

A Dissertation Submitted in Partial Fulfillment
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ACCEPTANCE

This dissertation was prepared under the direction of the candidate's Dissertation Committee. It has been approved and accepted by all members of that committee, and it has been accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy in Economics in the Andrew Young School of Policy Studies of Georgia State University.

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CONTENTS

TABLES

FIGURES

Figure Page

ABSTRACT

STATE CHILDREN'S HEALTH INSURANCE PROGRAM:

PARTICIPATION DECISION AND LABOR SUPPLY EFFECTS

BY

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Our study estimates the crowd-out of private health insurance following SCHIP expansions for children. We use panel data from the 2001 panel of the Survey of Income and Program Participation (SIPP). We use multivariate regression models to the crowd-out of private health insurance. This difference-in-differences approach controls for other factors that affect both the control group and treatment group, and measures the extent of crowd-out private coverage in the treatment group relative to the control group. We find that nearly 26 percent of the transitions from private coverage into SCHIP coverage were made by children who would have had private coverage in the absence of the expansions. This paper provides evidence that the SCHIP expansions have overall displacement effect of 52.9 percent for private coverage for those children who had private coverage or were uninsured from the first interview in 2001.

This dissertation provides empirical evidence on the impact of SCHIP on single mothers' working decisions using recent CPS (Current Population Survey) data during 1999-2005. The empirical work requires a measure of the change in eligibility requirements; we compute a measure suggested by Yelowitz (1995). The major findings of this paper are: first, SCHIP expansions are found to have a significant positive impact on hours-worked decision; second, most models yielded results that indicated that SCHIP expansions have a generally insignificant impact on the decision to work.

Chapter I

Introduction

The State Children's Health Insurance Program (SCHIP) was established as part of the Balanced Budget Act of 1997 and represents the largest expansion of public health insurance programs since the 1965 passage of Medicare and Medicaid (CMS 2004). The goal of SCHIP was to increase the insurance coverage of children by extending eligibility for public insurance to children in working families with incomes too high to qualify for Medicaid but too low to afford private coverage. Between 1997 and 2001, the proportion of children eligible for public health insurance increased from roughly one-third to one-half of all children. The number of children enrolled in SCHIP increased from 1 million children in December, 1998 to 5.3 million children in fiscal year 2002 (CMS 2003).

To increase insurance coverage rates for children in near-poor families, states must enroll previously ineligible children in a new public health insurance program. SCHIP can provide two incentives for families to drop existing private coverage. First, SCHIP coverage often has lower cost (that is, premiums and/or co-payments) compared to private health insurance coverage; and second, it sometimes provides more comprehensive benefits. Employers, too, may face financial incentives to discontinue dependent coverage or reduce their contributions if SCHIP coverage is available for their low-wage workers. To the extent that new public coverage simply substitutes for private coverage already in place, the decrease in the rate of uninsured minors could be smaller

than anticipated and fewer improvements in access to care and health status will be realized. Thus, the effect of the SCHIP expansion on overall coverage depends on how extent to which public health insurance is substituted for previously held privately provided benefits. Such substitution may also lead to greater-than-expected increases in program expenditures (Blumberg, Dubay, and Norton 2000)

Consequently, policy makers have shown concern about the potential for SCHIP to crowd out private health insurance. In fact, the majority of newly eligible children for SCHIP already had private health insurance coverage (LoSasso and Buchmueller 2004). The SCHIP legislation was designed to specify procedures used to ensure that the insurance coverage provided under SCHIP does not substitute for coverage under group health plans.[1] Title XXI also required states in their evaluations to review and assess their activities to coordinate their SCHIP program with other private programs providing health care.[2] States' anti-crowd out efforts entail measures designed to limit the relative attractiveness of public health insurance for those with private health benefits before the children in a family become eligible for SCHIP benefits.

Many empirical studies have yielded crowd-out estimates which range from zero to 77 percent (Blumberg, Dubay, and Norton 2000; Card and Shore-Sheppard 2003; Cunningham, Hadley, and Reschovsky 2002; Cutler and Gruber 1996; Dubay and Kenney 1996; Ham and Shore-Sheppard 2003; LoSasso and Buchmueller 2004; Shore-Sheppard, Buchmueller, and Jensen 2000; Thorpe and Florence 1998; Yazici and

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[1] "State Children's Health Insurance Program," Title XXI, Social Security Act, 1997, Section 2101 (b)(3)(c)

[2] "State Children's Health Insurance Program," Title XXI, Social Security Act, 1997, Section 2108 (b)(1)(D)

Kaestner 2000). These crowd-out studies are not directly comparable, since the results vary by measurement of the crowd out effect and with the data and statistical methods used. Nevertheless, there appears to be a general consensus that expanding public health insurance coverage to those in higher income brackets may produce a greater degree of crowd out.

The above-cited literature on SCHIP expansions compared the reduction in the share of the population with private coverage to the increase in the share of the population with public coverage due to the expansion. The contribution of the analysis done here is that we consider actual SCHIP coverage transitions among low-income children (especially among the newly eligible population) by using 2001 SIPP (Survey of Income and Program Participation) panel. These data directly track changes in the health insurance coverage of children during the years of the SCHIP expansions.

Another incentive effect of SCHIP expansion concerns the impact of the expansion on single mother's labor market outcomes through the labor supply decisions of potential public assistance recipients. There are several potential effects. For example, one might expect that the SCHIP expansion would lead to an increase in labor force participation, as increased work, and hence income, would no longer cause low-income women to lose health insurance for children due to exceeding Medicaid income-eligibility limits. The impact of expanded SCHIP coverage on hours worked is ambiguous, as many newly eligible families already have working mothers.

There is a substantial literature that followed the Medicaid program expansions during the mid-1980s. This research analyzed how the availability of Medicaid health insurance affected the work decision of single women with children. Recent studies

suggest that health insurance availability, and Medicaid in particular, have either no or a very small effect on the labor force participation of low income single mothers (Blank 1989; Moffitt and Wolfe 1992; Winkler 1991; Yelowitz 1995). This is somewhat surprising given the potential importance of public health insurance for this population and their children.

There is relatively little evidence, however, on the effect of SCHIP on low-income female-headed households in the United States. One study – Wolfe et al (2005) - examined the effect of Wisconsin's SCHIP on the labor market outcomes of low-income single mothers. They found that introduction of SCHIP (BadgerCare) affected single mothers' labor supply in Wisconsin. In this research, we quantify the impact of the expansion of income eligibility limits on single mothers' labor supply and provided new national evidence on the SCHIP incentive effect.

The organization of this dissertation is as follows. In the next chapter, we lay out the background of the SCHIP program and proved data showing the variation in states' provision of SCHIP. In chapter III, we estimates the magnitude of crowd out among children following the SCHIP expansions, and presents national estimates of the effect of SCHIP program using the longitudinal SCHIP coverage data. In chapter IV, the impact of SCHIP on single mothers' working decisions is analyzed using recent data from the CPS (Current Population Survey). Chapter V concludes the work.

Chapter II

Review on the State Children's Health Insurance Program

Growth of SCHIP

The State Children's Health Insurance Program was enacted as part of the Balance Budget Act of 1997. The purpose of the new State Children's Health Insurance Program, codified as Title XXI of the Social Security Act, is "to provide funds to States to enable them to initiate and expand the provision of child health assistance to uninsured, low-income children."[3] SCHIP targets children in low-income working families with incomes too high to qualify for the Medicaid but too low to afford private coverage. Generally, children in families with income less than 200 percent of the income poverty line are eligible,[4] although states are allowed some flexibility in choosing eligibility income cutoffs.[5] States were granted the freedom to increase the SCHIP income poverty threshold to at least 200 percent of poverty or by 50 percentage points above the Medicaid poverty cutoffs, whichever is higher.[6] We can see from Table 1 that there are some states extending coverage to children in families with income levels up to

[3] "State Children's Health Insurance Program," Title XXI, Social Security Act, 1997, Section 2101 (a)

[4] If children are eligible for Medicaid or a member of family eligible for state employee insurance, they are not eligible for SCHIP coverage (CMS 2004).

[5] Determining eligibility of SCHIP coverage depends on , for example, children's age, family total income, residency area, access to other health insurance and duration of uninsured periods before SCHIP enrollment (Green Book 2004)

[6] Sec. 2110(b)(1) of the *Social Security Act*. In 1997, 200 percent of the federal poverty level amounted to about $32,000 for a family of four.

350 percent of the poverty level (New Jersey). States have a great deal of latitude in determining eligibility.

Title XXI authorized that enrollment could begin as early as October 1, 1997, and eight states began covering children under SCHIP during 1997 (Table 2). The majority of states (34 in all) began enrollment in 1998, while 7 states began enrollment in 1999. Two states, Hawaii and Washington, began enrolling children in 2000.

For the six years Federal Fiscal Year (FFY) 1999 through 2004 children's health coverage expanded steadily, Table 3 and Figure 1 show a continued and consistent rise in the number of children enrolled for at least some part of the year in SCHIP. In FFY 2004, 6 million children were enrolled for at least part of the year in SCHIP, which is an increase of 1.5 million children, or 24 percent, over the 4.6 million children enrolled in FFY 2001. The 6 million children enrolled in FFY 2004 are more than three times as many children enrolled in FFY 1999.

Under SCHIP, states have worked to improve enrollment and retention processes and have used many different outreach strategies (Dick A et al. 2002; Ross and Hill 2003). Administrative reforms include establishing continuous eligibility, simplifying application forms for Medicaid and SCHIP, eliminating face-to-face interviews and resource tests, allowing self-declaration of income and electronic submissions and using passive renewal systems. Outreach strategies include use of mass media campaigns, establishing toll-free information lines and web sites to increase awareness about programs.

TABLE 1. STATE VARIATIONS IN MEDICAID AND SCHIP INCOME THRESHOLDS, BY STATE

	Medicaid Thresholds as of May 20, 1998 (% of FPL)				SCHIP Thresholds (% of FPL)		
	`Infants	Children Under Age 6	Children Ages 6 to 14	Children Ages 14 to 19	FFY 1999	FFY 2000	FFY 2001
Alabama	133	133	100	100	200	200	200
Alaska	133	133	100	90	200	200	200
Arizona	140	133	100	30	200	200	200
Arkansas	200	200	200	200	100	100	100
California	200	133	100	100	250	250	250
Colorado	133	133	100	37	185	185	185
Connecticut	185	185	185	185	300	300	300
Delaware	185	133	100	100	200	200	200
District of Columbia	185	133	100	37	200	200	200
Florida	185	133	100	100	200	200	200
Georgia	185	133	100	100	200	200	200
Hawaii	185	133	100	100	-	200	200
Idaho	160	160	160	160	150	150	150
Illinois	200	133	130	133	133	185	185
Indiana	150	133	100	100	150	200	200
Iowa	185	133	100	37	185	200	200
Kansas	150	133	100	100	200	200	200
Kentucky	185	133	100	46	200	200	200
Louisiana	133	133	100	17	150	150	150
Maine	185	133	125	125	185	185	185
Maryland	185	185	185	33	200	200	200
Massachusetts	185	133	133	133	200	200	200
Michigan	185	150	150	150	200	200	200
Minnesota	275	275	275	275	280	280	280
Mississippi	185	133	100	32	100	200	200
Missouri	185	133	100	100	300	300	300
Montana	133	133	100	48	150	150	150
Nebraska	150	133	100	100	185	185	185
Nevada	133	133	100	31	200	200	200
New Hampshire	300	185	185	185	300	300	300
New Jersey	185	133	133	133	350	350	350
New Mexico	185	185	185	185	235	235	235
New York	185	133	100	51	192	192	192
North Carolina	185	133	100	100	200	200	200
North Dakota	133	133	100	100	100	140	140

TABLE 1. CONTINUED

	Medicaid Thresholds as of May 20, 1998 (% of FPL)				SCHIP Thresholds (% of FPL)		
	`Infants	Children Under Age 6	Children Ages 6 to 14	Children Ages 14 to 19	FFY 1999	FFY 2000	FFY 2001
Ohio	150	150	100	100	200	200	200
Oklahoma	185	185	100	90	200	200	200
Oregon	133	133	100	30	200	200	200
Pennsylvania	185	133	200	200	100	100	100
Rhode Island	250	250	100	100	250	250	250
South Carolina	185	150	100	37	185	185	185
South Dakota	133	133	185	185	300	300	300
Tennessee	400	400	100	100	200	200	200
Texas	185	133	100	37	200	200	200
Utah	133	133	100	100	200	200	200
Vermont	225	225	100	100	200	200	200
Virginia	133	133	100	100	-	200	200
Washington	200	200	160	160	150	150	150
West Virginia	150	133	130	133	133	185	185
Wisconsin	185	185	100	100	150	200	200
Wyoming	133	133	100	37	185	200	200

Source: Medicaid Eligibility for Families and Children in Kaiser Family Foundation (Available from http://www.kff.org/medicaid/2106-eligibility5.cfm; accessed 10 November 2005), and The State Children's Health Insurance Program Annual Enrollment Report, Federal Fiscal Year (FFY) 1999, 2000 and 2001 on Centers for Medicare and Medicaid Services (Available from http://www.cms.hhs.gov/NationalSCHIPPolicy/SCHIPER/list.asp; accessed 10 November 2005)

TABLE 2. SCHIP EXPANSION TYPE, AS OF MARCH 31, 2001

STATE	Expansion Type	Plan Name	Date implemented	
			M-SCHIP	S-SCHIP
Alabama	COMBO	Medicaid/ALL Kids	Feb-98	Oct-98
Alaska	M-SCHIP	Denali KidCare	Mar-99	-
Arizona	S-SCHIP	KidsCare	-	Nov-98
Arkansas	M-SCHIP	ARKidsFirst	Oct-98	-
California	COMBO	Access for Infants and Mothers&Healthy Families	Mar-98	-
Colorado	S-SCHIP	Child Health Plan Plus (CHP+)	-	Apr-98
Connecticut	COMBO	Husky A & Husky B	Oct-97	Jul-98
Delaware	S-SCHIP	Delaware Healthy Children Program	-	Feb-99
District of Columbia	M-SCHIP	Healthy DC Kids	Oct-98	-
Florida	COMBO	Florida Kids Care Program	Apr-98	Apr-98
Georgia	S-SCHIP	PeachCare for Kids	-	Nov-98
Hawaii	M-SCHIP	Hawaii Title XXI Program	Jul-00	-
Idaho	M-SCHIP	Idaho Children's Health Insurance Program	Oct-97	-
Illinois	COMBO	KidCare Assist Expansion/KidCare Share&KidCare Premium	Jan-98	Oct-98
Indiana	COMBO	Hoosier Healthwise	Jun-97	Jan-00
Iowa	COMBO	Medicaid/Healthy and Well Kids in Iowa(HAWK-I)	Jul-98	Jan-99
Kansas	S-SCHIP	HealthWave	-	Jan-99
Kentucky	COMBO	KCHIP	Jul-98	Nov-99
Louisiana	M-SCHIP	LaCHIP	Nov-98	-
Maine	COMBO	Medicaid/Cub Care	Jul-98	Aug-98
Maryland	M-SCHIP	Maryland's Children's Health Program	Jul-98	-
Massachusetts	COMBO	MassHealth/Family Assistance	Oct-97	Aug-98
Michigan	COMBO	Healthy Kids/MIChild	Apr-98	May-98
Minnesota	M-SCHIP	Minnesota Care	Sep-98	-
Mississippi	COMBO	Mississippi Health Benefits Program	Jul-98	Jan-00
Missouri	M-SCHIP	MC+ for Kids	Jul-98	-
Montana	S-SCHIP	MT CHIP	-	Jan-99
Nebraska	M-SCHIP	Kids Connection	Jul-98	
Nevada	S-SCHIP	Nevada Check-Up	-	Oct-98
New Hampshire	COMBO	Healthy Kids	May-98	Jan-99
New Jersey	COMBO	NJ FamilyCare Plan A/NJ FamilyCare Plan B, C, D	Feb-98	Mar-98
New Mexico	M-SCHIP	State Children's Health Insurance Program	Mar-99	-
New York	COMBO	Medicaid/Child Health Plus (CHPlus)	Jan-99	Apr-98
North Carolina	S-SCHIP	NC Health Choice for Children	-	Oct-98
North Dakota	COMBO	Healthy Steps	Oct-98	Nov-99
Ohio	M-SCHIP	Healthy Start	Jan-98	-

TABLE 2. CONTINUED

STATE	Expansion Type	Plan Name	Date implemented	
			M-SCHIP	S-SCHIP
Oklahoma	M-SCHIP	SoonerCare	Dec-97	-
Oregon	S-SCHIP	OR CHIP	-	Jul-98
Pennsylvania	S-SCHIP	PA CHIP	-	May-98
Rhode Island	M-SCHIP	RIte Care	Oct-97	-
South Carolina	M-SCHIP	Partmenrs for Healthy Children	Oct-97	-
South Dakota	COMBO	SD CHIP/CHIP NM	Jul-98	Jul-00
Tennessee	M-SCHIP	TennCare for Children	Oct-97	-
Texas	COMBO	TX CHIP	Jul-98	Apr-00
Utah	S-SCHIP	Utah CHIP	-	Aug-98
Vermont	S-SCHIP	Dr.Dynasaur	-	Oct-98
Virginia	S-SCHIP	Family Access to Medical Insurance Security Plan (FAMIS)	-	Oct-98
Washington	S-SCHIP	Washington CHIP	-	Feb-00
West Virginia	S-SCHIP	WV SCHIP	Jul-98	Apr-99
Wisconsin	M-SCHIP	BadgerCare	Apr-99	-
Wyoming	S-SCHIP	Wyoming KidCare	-	Dec-99

Source: TableI.1 in Rosenbach, Ellwood, Irvin, Young, Conroy, Quinn and Kell (2003), 2-3, available from www.cms.hhs.gov/Reports/downloads/rosenbach_2001_5.pdf; accessed 18 October 2005 and Shore-Sheppard (2003)

Note: M-SCHIP =Medicaid Expansion Program, S-SCHIP =Separate Children Health Program, COMBO =Combination (Medicaid Expansion and Separate Children Health Program). When more than one name is noted, the first is that of the Medicaid Expansion Program; and the rest are the names of Separate Children Health Programs. The Expansion type is as of March 31, 2001.

TABLE 3. NUMBER OF CHILDREN EVER ENROLLED IN SCHIP FOR FEDERAL FISCAL YEAR 1999 THROUGH 2004

STATE	Expansion Type	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004
Total		**1,959,330**	**3,333,879**	**4,601,098**	**5,325,494**	**5,841,350**	**6,063,614**
Alabama	COMBO	38,980	37,587	68,179	83,359	78,554	79,407
Alaska	M-SCHIP	8,033	13,413	21,831	22,291	22,934	21,966
Arizona	S-SCHIP	26,807	60,803	86,863	92,705	90,468	87,681
Arkansas	M-SCHIP	913	1,892	2,884	1,912	NR	NR
California	COMBO	222,351	477,615	693,048	856,994	955,152	1,035,752
Colorado	S-SCHIP	24,116	34,889	45,773	51,826	74,144	57,244
Connecticut	COMBO	9,912	18,804	18,720	21,346	21,470	21,438
Delaware	S-SCHIP	2,433	4,474	5,567	9,691	9,744	10,250
District of Columbia	M-SCHIP	3,029	2,264	2,807	5,060	5,875	6,093
Florida	COMBO	154,594	227,463	298,705	368,180	443,177	419,707
Georgia	S-SCHIP	47,581	120,626	182,762	221,005	251,711	280,083
Hawaii	M-SCHIP	NI	2,256	7,137	8,474	12,022	19,237
Idaho	M-SCHIP	8,482	12,449	13,276	16,895	16,877	19,054
Illinois	COMBO	42,699	62,507	83,510	68,032	126,855	234,027
Indiana	COMBO	31,246	44,373	56,986	66,225	73,762	80,698
Iowa	COMBO	9,795	19,958	23,270	34,506	37,060	40,776
Kansas	S-SCHIP	14,443	26,306	34,241	40,783	45,662	44,350
Kentucky	COMBO	18,579	55,593	66,796	93,941	94,053	94,500
Louisiana	M-SCHIP	21,580	49,995	69,579	87,675	104,763	105,580
Maine	COMBO	13,657	22,742	27,003	22,586	29,474	29,171
Maryland	M-SCHIP	18,072	93,081	109,983	125,180	130,161	111,488
Massachusetts	COMBO	67,852	113,034	105,072	116,699	125,177	166,508
Michigan	COMBO	26,652	37,148	76,181	71,882	77,467	NR
Minnesota	M-SCHIP	21	24	49	49	48	4,784
Mississippi	COMBO	13,218	20,451	52,436	64,805	75,010	82,900
Missouri	M-SCHIP	49,529	73,825	106,594	112,004	150,292	176,014
Montana	S-SCHIP	1,019	8,317	13,518	13,875	13,084	15,281
Nebraska	M-SCHIP	9,713	11,400	13,933	16,227	45,490	33,314
Nevada	S-SCHIP	7,802	15,946	28,026	37,878	47,183	38,519
New Hampshire	COMBO	4,554	4,272	5,982	8,138	9,893	10,951
New Jersey	COMBO	75,652	89,034	99,847	117,053	119,272	127,244
New Mexico	M-SCHIP	4,500	6,106	10,347	19,940	18,841	20,804
New York	COMBO	521,301	769,457	872,949	807,145	795,111	826,611
North Carolina	S-SCHIP	57,300	103,567	98,650	120,090	149,979	174,259

TABLE 3. CONTINUED

STATE	Expansion Type	FY1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004
Total		**1,959,330**	**3,333,879**	**4,601,098**	**5,325,494**	**5,841,350**	**6,063,614**
North Dakota	COMBO	266	2,573	3,404	4,463	4,955	5,133
Ohio	M-SCHIP	83,688	111,436	158,265	183,034	204,114	220,190
Oklahoma	M-SCHIP	40,196	57,719	38,858	84,490	91,914	100,761
Oregon	S-SCHIP	27,285	37,092	41,468	42,976	44,752	46,720
Pennsylvania	S-SCHIP	81,758	119,710	141,163	148,689	160,015	177,415
Rhode Island	M-SCHIP	7,288	11,539	17,398	19,515	24,505	25,573
South Carolina	M-SCHIP	45,737	59,853	66,183	68,928	76,128	75,597
South Dakota	COMBO	3,191	5,888	8,937	11,183	11,361	13,397
Tennessee	M-SCHIP	9,732	14,861	8,615	10,216	-	-
Texas	COMBO	50,878	130,519	500,950	727,452	726,428	650,856
Utah	S-SCHIP	13,040	25,294	34,655	33,808	37,766	38,693
Vermont	S-SCHIP	2,055	4,081	2,996	6,162	6,467	6,693
Virginia	S-SCHIP	16,895	37,681	73,102	67,974	83,716	99,569
Washington	S-SCHIP	NI	2,616	7,621	8,754	9,571	17,002
West Virginia	S-SCHIP	7,957	21,659	33,144	35,949	35,320	36,906
Wisconsin	M-SCHIP	12,949	47,140	57,183	62,391	68,332	67,893
Wyoming	S-SCHIP	NI	2,547	4,652	5,059	5,241	5,525

Source: CMS Annual Enrollment Reports for FY1999, FY2000, FY2001, FY2002, FY2003, FY2004. Available from http://www.cms.hhs.gov/NationalSCHIPPolicy; accessed 19 October 2005.

Note: NI = State's SCHIP program was not implemented in FFY 1999. Hawaii, Washington and Wyoming did not implement their SCHIP programs until FFY 2000. NR = Indicates that state has not reported data via the Statistical Enrollment Data System (SEDS). Tennessee does not currently cover any children in its SCHIP program in FFY2003 and FFY2004

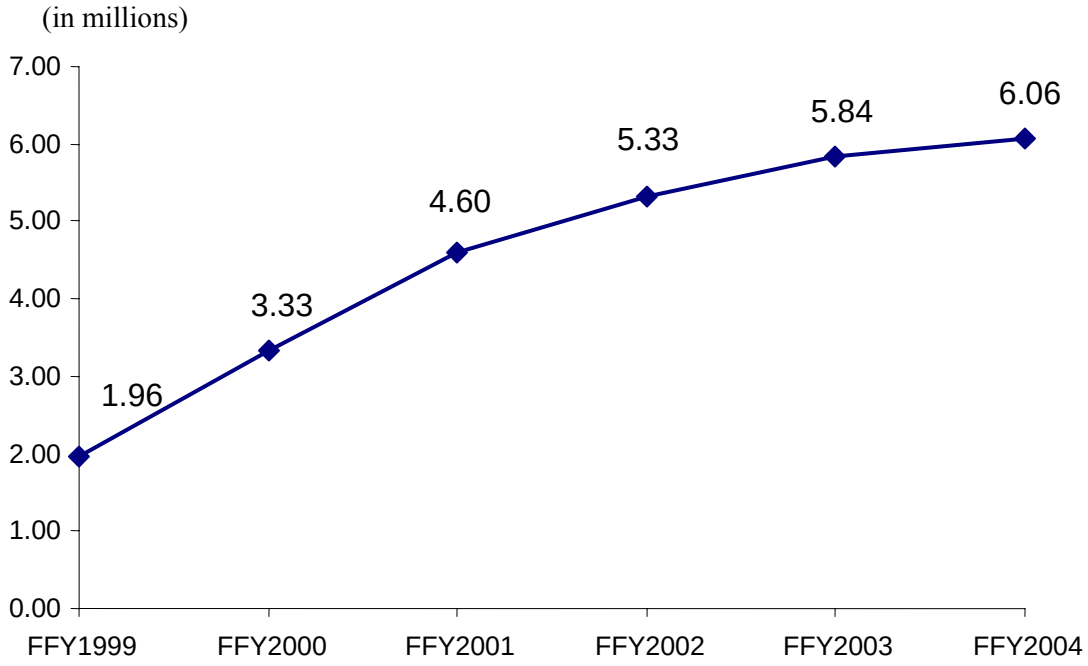

Figure 1. SCHIP ever enrolled federal fiscal year 1999 through 2004

Source: CMS Annual Enrollment Reports for FY1999, FY2000, FY2001, FY2002, FY2003, FY2004. Available from http://www.cms.hhs.gov/NationalSCHIPPolicy; accessed 13 November 2005.

Administrative options for states

SCHIP offers participating states two basic approaches to the provision of child health assistance: expansion of Medicaid, or establishment of a new child health assistance program to aid children who are ineligible for Medicaid or are not covered by another form of creditable coverage (such as coverage under an employer-group plan).

As of March 31, 2001, 17 states operated Medicaid expansion program (referred to as M-SCHIP), 16 states operated separate child health programs (referred to as S-SCHIP), and 18 states used both approaches to expand coverage (referred to as COMBO) (Table 1).

States can expand Medicaid by increasing the maximum family income allowable for children. States with existing children's health programs can expand those programs, either by increasing the number of spaces available or by allowing higher-income children in, if those programs follow all Medicaid eligibility rules regarding valuation of family income, geography, residency, and comparability of coverage. Alternatively, states can establish new programs that comply with the federal law. States with separate SCHIP programs have broad discretion to set eligibility standards and can take into account geography, residency, access to other coverage, and age.[7] In all instances, the state will receive federal matching funds, up to the state's allotment, for the new children enrolled. States may combine these two approaches. That is, a state may use some if its SCHIP funds to expand Medicaid and the rest to provide another form of child health assistance.

Under a Medicaid expansion program, the eligibility rules of Medicaid apply (CMS 2004). However, states were allowed to create a separate optional program within their Medicaid program for SCHIP children (such as establishing waiting periods and implementing enrollment fees) through an 1115 waiver (Green book 2004). While the income thresholds were different for each program, the SCHIP children would qualify for the same benefits as Medicaid children. With a separate SCHIP program, the state must offer a benefit package that is comparable to one of three private benchmark insurance plans: the Federal Employees Health Benefits Program (FEHBP) Blue Cross standard

[7] Sec. 2102(b)(1) of the Social Security Act.

option plan, the state's employee health benefit plan, or the health maintenance organization (HMO) with the largest number of commercially insured members in the state.[8] A state with separate SCHIP programs must provide coverage that is "equivalent to the benefits coverage in a benchmark package" and that covers certain basic services.[9]

The primary reason for expanding Medicaid is that states can build on existing infrastructure. Medicaid programs have existing networks of providers, systems for handling client and provider issues such as enrollment, education, and appeals, and mechanisms for rate setting, claims payment, and fraud prevention. In addition, administrative costs for Medicaid are quite low-averaging approximately 5 percent of total program costs.[10] However, states that expanded their Medicaid programs lose the opportunity to increase program flexibility.[11] Thus, this approach is losing flexibility afforded states in designing their own system under new law. The principal attraction of establishing a new state program, or building upon an existing one, is the flexibility in designing a program that better meets the needs of children in a particular state. This choice, of course, means that states face administrative and design challenges.

Every state has established an SCHIP program. The average SCHIP income threshold, as of September 30, 2001, was 203 percent of poverty. Table 1 summarizes the types of expansions, how the states' income eligibility cutoffs vary across states and age

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[8] Sec. 2103(b)

[9] Sec. 2103(a)(1). Basic services are inpatient and outpatient hospital care, physicians' surgical and medical services, laboratory and x-ray services, and well-baby and well-child care, including age-appropriate immunizations. Benchmark-equivalent packages must cover these services up to 100 percent of their aggregate actuarial value. Equivalence is determined in relation to the "aggregate value" of the benchmark for both "basic' services as well as "additional services" covered in the equivalent package. State benchmark-equivalent packages must cover certain additional services (prescribed drugs, mental health services, vision services, and hearing services) if such services are covered in the benchmark selected by the state, up to 75 percent of their aggregate actuarial value.

[10] . Data from the U.S. Health Care Financing Administration for 1995. Data available at the HCFA web site.

[11] See, for example, National Governors' Association Policy EC-8, on Medicaid, available at the NGA web site.

groups. It is clear from Table 1 that there was unevenness in cross-state eligibility and in eligibility among children of different ages before SCHIP. In many states prior to SCHIP, income eligibility cutoffs for younger children are more generous than for older children. Roughly 50 percent of the states set 1997 Medicaid cutoffs as family income below 100 percent of the poverty level for children 15 to 18 years of age children. Most of states also have more generous Medicaid eligibility criteria for children 0 to 5 years of age relative to children 6 to 14 years of age. The SCHIP expansions largely eliminated this within-state variation in eligibility based on age. Likewise, under the SCHIP expansions, states with lower eligibility limits for Medicaid experienced the largest increases in the proportion of children eligible for public benefits under SCHIP, so that the SCHIP expansions have reduced cross-state variation in the implementation of the Medicaid program (Cunningham 2001; Ullman and Hill 2001).

Figure 2 depicts how the extent of the expansion of coverage under SCHIP varies by age. On average, SCHIP raised income thresholds by 61 percentage points among children ages 1 through 5, but among older adolescents (ages 17 and 18), SCHIP expanded coverage by an average of 129 percentage points. Equally important, SCHIP has enabled states to minimize the impact of the traditional "stairstep" approach to eligibility under Medicaid that, in most states, left some children within a low-income family without coverage.

Table 4 reflects the extent to which SCHIP has allowed states to extend eligibility for publicly financed health insurance coverage beyond the thresholds set by Medicaid as of May 20, 1998. Narrow expansions reflect increases of less than 50 percentage points in all age categories, or at least a 50 percentage point increase in one age category only (18

states); intermediate expansions reflect increases of at least 50 percentage points in two age categories (6 states); and broad expansions reflect increases of at least 50 percentage points in three or four age categories (27 states).

States continue to modify the eligibility levels for their SCHIP programs. Since March 2001, for example, Georgia increased eligibility in its S-SCHIP program from 200 to 235 percent of poverty. Maine raised its S-SCHIP threshold from 185 to 200 percent of poverty. Maryland implemented an S-SCHIP component that covers children in families with income between 200 and 300 percent of poverty. New York increased the net income threshold from 192 to 200 percent of poverty for its S-SCHIP program effectively increasing eligibility to 250 percent of poverty through the use of income disregards. Finally, Wyoming expanded S-SCHIP eligibility from 134 to 150 percent of poverty.

Financing structure

An essential component of the SCHIP program is its matching financing structure. That is, funds are only available to states that spend some of their own funds. The federal statute establishes certain criteria for determining allowable state expenditures, the most important of which is an extension to SCHIP of Medicaid's prohibition against the use of provider taxes or donations to finance the state share of SCHIP.[12]

[12] Sec.2107(e)(1)(C)

TABLE 4.ABSOLUTE AND RELATIVE LEVELS OF INCOME THRESHOLDS UNDER SCHIP, AS OF SEPTEMBER 30, 2001

Level of SCHIP Income Thresholds Relative to Medicadid	Absolute level of SCHIP Income Thresholds			
	At or below 150 percent of poverty (N=8)	151 to 200 percent of poverty (N=8)	At 200 percent of poverty (N=25)	Over 200 percent of poverty (N=10)
Narrow (N=18)	Arkansas Idaho Louisiana North Dakota South Carolina Tennessee Wyoming	Illinois Maine Oklahoma	Maryland Michigan Ohio	New Mexico Minnesota Rhode Island Vermont Washington
Intermediate (N=6)	Montana	Colorado Oregon Nebraska New Your Wisconsin		
Broad (N=27)			Alabama Alaska Arizona Delaware District of Columbia Florida Georgia Hawaii Indiana Iowa Kansas Kentucky Massachusetts Mississippi Nevada North Carolina Pennsylvania South Dakota Texas Utah Virginia West Virginia	California Connecticut New Hampshire New Jersey Missouri

Source: Source: Medicaid Eligibility for Familes and Children in Kaiser Family Foundation (Available from http://www.kff.org/medicaid/2106-eligibility5.cfm; accessed 14 November 2005), and The State Children's Health Insurance Program Annual Enrollment Report, Federal Fiscal Year (FFY) 1999, 2000 and 2001 on Centers for Medicare and Medicaid Services (Available from http://www.cms.hhs.gov/NationalSCHIPPolicy/SCHIPER/list.asp; accessed 14 November 2005)

Note: The relative level of SCHIP income thresholds reflects the magnitude of the expansion relative to traditional Medicaid across for age categories: less than 1 year, 1 through 5,, 6 through 14, and 14 through 19.
Narrow = Increased coverage by less than 50 percentage points or increased coverage by at least 50 percentage points for one age category
Intermediate = Increased coverage by at least 50 percentage points for two age categories.
Broad=Increased coverage by at least 50 percentage points for three or four age categories.

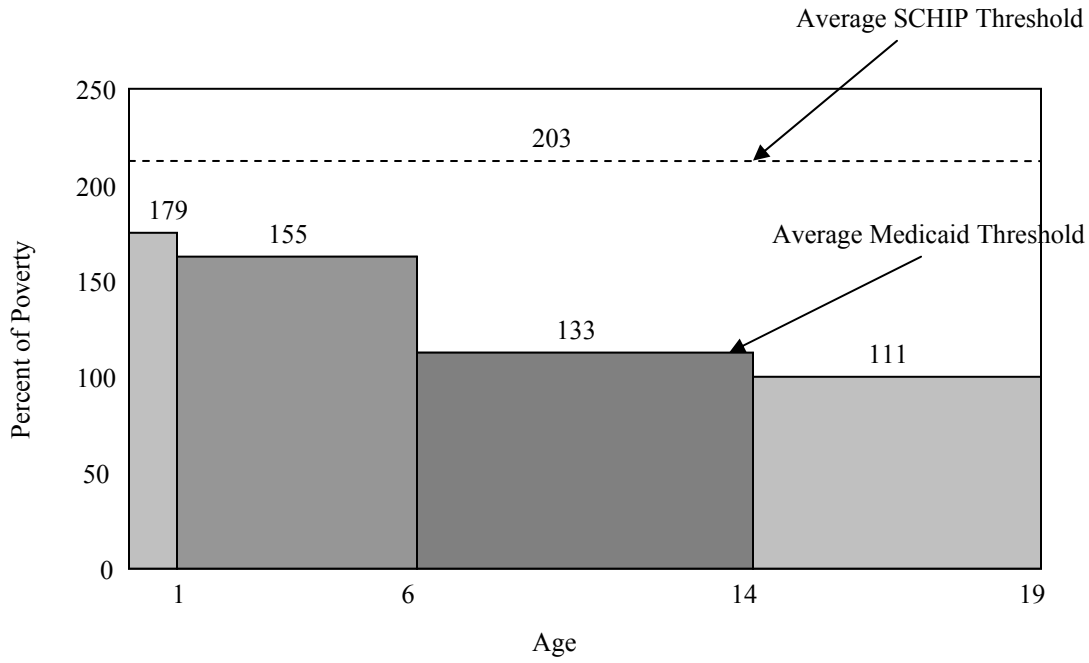

Figure 2. Medicaid and SCHIP average eligibility thresholds based on family income as a percentage of the federal poverty level, as of September 30, 2001

Source: Source: Medicaid Eligibility for Families and Children in Kaiser Family Foundation (Available from http://www.kff.org/medicaid/2106-eligibility5.cfm; accessed 15 Noverber 2005), and The State Children's Health Insurance Program Annual Enrollment Report, Federal Fiscal Year (FFY) 1999, 2000 and 2001 on Centers for Medicare and Medicaid Services (Available from http://www.cms.hhs.gov/NationalSCHIPPolicy/SCHIPER/list.asp; accessed 17 November 2005)
Note: The average Medicaid thresholds are based on the thresholds in place on May 20, 1998

The law also requires that states maintain their Medicaid programs at June 1997 levels. States also must maintain a 1996 level of effort with respect to other state child health expenditures, including expenditures under existing state comprehensive benefit programs.[13]

This structure creates incentives for state participation but limits federal budget exposure. Federal matching rates are higher under SCHIP than under Medicaid. The federal SCHIP contribution is equal to a state's "federal medical assistance percentage" (FMAP) increased by 30 percent of the difference between 100 and the state's FMAP, but is capped at 85 percent (Table 5).[14] Under SCHIP, states are allotted funds based on a matching formula established by Congress and each state is allowed to define the targeted group of low-income children to receive health insurance through the SCHIP program.[15] Once a state has exhausted its federal allotment, additional federal SCHIP funds are available only if other states have unspent allotments. SCHIP provides states with nearly $40 billion in federal matching funds over ten years to expand coverage for low-income children. The Balanced Budget Act authorizes $20.3 billion in federal funds from FY 1998 through FY 2002 and $19.4 billion over the second five years. Over the ten-year period, the funds are allocated as follows: $4.275 billion per year in FY 1998-2001, falling to $3.15 billion annually in FY 2002 through 2004, and then rising to $4.05 billion from FY 2005 through 2006, and reaching $5 billion for 2007, for a total of $40 billion (Figure 3).

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[13] Sec. 2105(d).

[14] *62 Federal Register* 48098 (12 September 1997)

[15] Federal SCHIP allotments are made in accordance with a formula that takes into account the number of low-income children, with and without insurance, with the formula weighted toward low-income children in the latter years of implementation, as the number of insured children grows. *62 Federal Register* 48098 (12 September 1997)

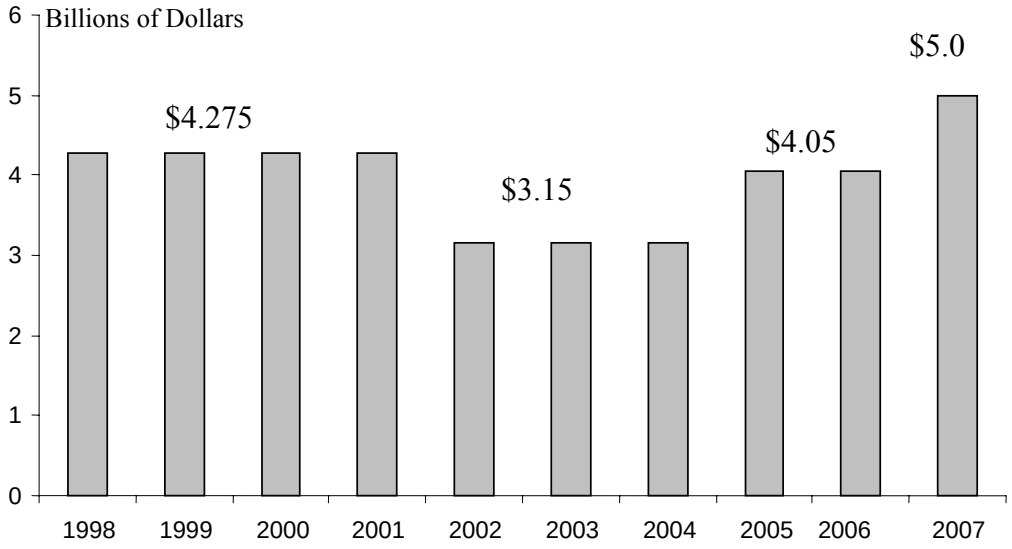

Figure 3. Federal allocations for SCHIP FFY 1998-2007

Source: Federal Register, 1997

TABLE 5. FEDERAL MATCHING RATE (FMAP) FOR SCHIP

STATE	FFY1999	FFY2000	FFY2001	FFY2002	FFY2003	FFY2004
Alabama	78.49	78.70	78.99	79.32	79.42	79.53
Alaska	71.86	71.86	69.23	70.17	70.79	70.87
Arizona	75.85	76.14	76.04	75.49	77.08	77.08
Arkansas	81.07	81.00	81.11	80.85	82.00	82.27
California	66.09	66.17	65.88	65.98	65.00	65.00
Colorado	65.42	65.00	65.00	65.00	65.00	65.00
Connecticut	65.00	65.00	65.00	65.00	65.00	65.00
Delaware	65.00	65.00	65.00	65.00	65.00	65.00
District of Columbia	79.00	79.00	79.00	79.00	79.00	79.00
Florida	69.07	69.56	69.63	69.50	71.18	71.25
Georgia	72.33	71.92	71.77	71.30	71.72	71.71
Hawaii	65.00	65.71	67.70	69.44	71.14	71.23
Idaho	78.89	79.11	79.53	79.71	79.67	79.32
Illinois	65.00	65.00	65.00	65.00	65.00	65.00
Indiana	72.71	73.22	73.43	73.43	73.38	73.62
Iowa	74.32	74.14	73.87	74.00	74.45	74.75
Kansas	72.03	72.02	71.90	72.14	72.11	72.57
Kentucky	79.37	79.39	79.27	78.96	78.92	79.06
Louisiana	79.26	79.22	79.37	79.21	79.90	80.14
Maine	76.48	76.35	76.28	76.61	76.35	76.21
Maryland	65.00	65.00	65.00	65.00	65.00	65.00
Massachusetts	65.00	65.00	65.00	65.00	65.00	65.00
Michigan	66.91	68.58	69.33	69.45	68.79	69.12
Minnesota	66.05	66.04	65.78	65.00	65.00	65.00
Mississippi	83.75	83.76	83.77	83.26	83.63	83.96
Missouri	72.17	72.36	72.72	72.74	72.86	73.03
Montana	80.21	80.61	81.13	80.98	81.07	81.00
Nebraska	73.02	72.62	72.27	71.69	71.66	71.92
Nevada	65.00	65.00	65.25	65.00	66.67	68.45
New Hampshire	65.00	65.00	65.00	65.00	65.00	65.00
New Jersey	65.00	65.00	65.00	65.00	65.00	65.00
New Mexico	81.09	81.32	81.66	81.13	82.19	82.40
New York	65.00	65.00	65.00	65.00	65.00	65.00
North Carolina	74.15	73.74	73.73	73.02	73.79	74.00
North Dakota	78.96	79.29	78.99	78.91	77.85	77.82
Ohio	70.78	71.07	71.32	71.15	71.18	71.46
Oklahoma	79.59	79.76	79.87	79.30	79.39	79.17
Oregon	72.38	71.97	72.00	71.44	72.11	72.57

TABLE 5. CONTINUED

STATE	FFY1999	FFY2000	FFY2001	FFY2002	FFY2003	FFY2004
Pennsylvania	67.64	67.67	67.53	68.26	68.28	68.33
Rhode Island	67.83	67.64	67.65	66.72	68.78	69.22
South Carolina	78.89	78.97	79.31	78.54	78.87	78.90
South Dakota	77.71	78.10	77.82	76.15	75.70	75.97
Tennessee	74.16	74.17	74.65	74.55	75.21	75.08
Texas	73.72	72.95	72.40	72.12	71.99	72.15
Utah	80.25	80.09	80.01	79.00	79.87	80.20
Vermont	73.38	73.57	73.68	74.14	73.69	72.94
Virginia	66.12	66.17	66.30	66.02	65.37	65.00
Washington	66.75	66.28	65.49	65.26	65.00	65.00
West Virginia	82.13	82.35	82.74	82.69	82.53	82.63
Wisconsin	71.20	71.15	71.50	71.00	70.90	70.89
Wyoming	74.86	74.83	75.22	73.38	72.92	71.84

Sources:
FY1999: Federal Register November 24, 1997 (Vol. 62, No. 226), 62613- 62615, available from http://aspe.hhs.gov/health/fmap99.htm; accessed 20 November 2005.
FY2000: Federal Register January 12, 1999 (Vol. 64, No. 7), 1805-1808, available from http://aspe.hhs.gov/health/fmap00.htm; accessed 20 November 2005.
FY2001: Federal Register February 23, 2000 (Vol. 65, No. 36), 8979-8980, available from http://aspe.hhs.gov/health/fmap01.htm; accessed 20 November 2005.
FY2002: Federal Register, November 17, 2000, available from http://aspe.hhs.gov/health/fmap02.htm; accessed 20 November 2005.
FY2003: Federal Register, November 30, 2001 (Vol. 66, No. 231), 59790-59793, available from http://aspe.hhs.gov/health/fmap03.htm; accessed 20 November 2005.
FY2004: Federal Register, November 15, 2002 (Vol. 67, No. 221), 69223-69225, available from http://aspe.hhs.gov/health/fmap04.htm; accessed 20 November 2005.
FY2005: Federal Register, December 3, 2003 (Vol. 68, No. 232), 67676-67678, available from http://aspe.os.dhhs.gov/health/fmap05.htm; accessed 20 November 2005.
FY2006: Federal Register, November 24, 2004 (Vol. 69, No. 224), 68370-68373, available from http://aspe.os.dhhs.gov/health/fmap06.htm; accessed 20 November 2005.

The matching structure is particularly important in this program because of its relationship to Medicaid. If the program were funded entirely by the federal government, there would be a tremendous financial incentive for states to find ways to move their Medicaid enrollees into the new program. If the match rates for SCHIP were less favorable than for Medicaid, states would have little reason to participate in the new program. As designed, the SCHIP match rate is somewhat higher than in Medicaid, creating an incentive to shift costs into that program, but with limitations since the federal SCHIP allocation for each state is capped.

Finally, states must use 90 percent of their federal allotments to provide child health assistance; in the absence of secretarial waivers to initiate certain community-based health care initiatives or to use funds to purchase family coverage through employer plans, states may spend only 10 percent of SCHIP funds on administration, outreach, and enrollment and for broad-based health service initiatives aimed at improving child health.[16]

Relation to Medicaid

SCHIP has had beneficial spillover effects on Medicaid enrollment for children, because its legislation requires states to screen SCHIP applicants for Medicaid eligibility. In designing SCHIP, Congress mandated that state have a process to limit SCHIP coverage to those children who are only eligible for SCHIP.[17] Congress also required

[16] Sec. 2105(a)(2).
[17] Sec. 2102(b)(3)(A)

that SCHIP programs implement approaches to "screen" children eligible for Medicaid and "enroll" in Medicaid those who are determined to be eligible for Medicaid during intake and follow-up screening.[18] These requirements are commonly referred to as "screen and enroll." Screen and enroll attempts to ensure that children receive coverage under the correct program and that the appropriate Federal matching rate is applied. Many states reported higher Medicaid enrollment growth following the adoption of their SCHIP expansions because so many applicants for SCHIP are eligible for Medicaid (Cohen, Ross, and Cox. 2000; Rosenbach 2003; Selden, Hudson, and Banthin 2004).

For the states that implemented the Medicaid expansion program, a method coordinated with Medicaid was not complicated. On the other hand, for the states with separate SCHIP program, coordination with Medicaid was not straightforward. Separate SCHIP programs under "screen and enroll" requirement must first screen applicants for Medicaid eligibility. Under Title XXI, if a child appears to be Medicaid-eligible, official SCHIP eligibility can not be determined until after Medicaid eligibility is first determined. Effective coordination may also facilitate retention of coverage when applicants' determinants for SCHIP and Medicaid eligibility change. With changing economic conditions, poor families' income and other eligibility determinants fluctuate significantly. By coordinating eligibility re-determination for SCHIP and Medicaid, states may help families retain coverage when they need to move from one program to the other.

There are several coordination efforts in all state with separate SCHIP programs. The most common coordination approach is "simplification of the enrollment process." The tools to simplify the enrollment process are the use of joint applications, combined outreach, and shared administration. First, joint application for SCHIP and Medicaid is

[18] Sec. 2102(b)(3)(B)

one way to screen eligibility for Medicaid and SCHIP from a single application. Of the 30 states with separate SCHIP programs, 25 indicate that they used a joint application with Medicaid (Table 6). The advantages of joint applications are that they are designed to prevent applicants from applying duplicate information to multiple offices or completing additional paperwork. Also, states with separate SCHIP program use a simplified application with fewer questions and verification requirements than traditional Medicaid applications. Second, in order to increase awareness among low-income families about new SCHIP program and traditional Medicaid, states coordinate outreach activities. Twenty-six of the 30 states with S-SCHIP programs report coordinating outreach efforts with Medicaid (Table 6). The third approach to coordinate with Medicaid programs is to coordinate administrative activities between Medicaid and SCHIP program. Twenty-five states report coordinating administrative activities between Medicaid and S-SCHIP programs (Table 6), such as eligibility determination, health plan enrollment, marketing, quality assurance, and finance. In several states, such as Iowa, Kentucky, and Maine, the separate SCHIP program is administered by the state Medicaid agency. Some states transfer children between programs when their eligibility status changed as a result of administrative coordination. For example, in Georgia, families mail PeachCare applications to a central office. A contractor screens each application first for Medicaid eligibility, and forwards applications that are potentially Medicaid-eligible to the State Department of Medical Assistance for review. If the applicants are determined not to be Medicaid-eligible, the contractor is notified, and then completes the eligibility process for PeachCare. In Oregon, applications for SCHIP and Medicaid were mailed to

the Oregon Health Plan offices, where employees screened the applications first for Medicaid eligibility, then for SCHIP eligibility.

Relation to private coverage (employer-sponsored coverage)

Because SCHIP targets children with higher incomes, there are concerns that these children might be more likely to have access to, or to be covered by, employer-sponsored insurance. One of the great challenges in designing a SCHIP program for low-income people is how SCHIP should relate to the voluntary, employer-based system that covers most Americans. In fact, for children with income below 200 percent of the federal poverty line, 14.3 percent are uninsured, an even larger portion, 34.2 percent, have insurance through their employer (Rajan 1998). This section discusses how states implementing the SCHIP program attempt to avoid crowd-out of private insurance.

SCHIP programs may provide two incentives for families to drop existing private coverage. First, SCHIP coverage often has lower costs compared to private health insurance coverage; and second, it may provide more comprehensive benefits. Employers may also face financial incentives to discontinue dependent coverage or reduce their contributions if SCHIP coverage is available for their low-wage workers. The challenge for SCHIP administrators is to maximize the number of the uninsured who use the subsidy to buy new coverage, while minimizing the number of private dollars from employers and families that are withdrawn due to the value of the subsidy.

TABLE 6. COORDINATION BETWEEN SEPARATE SCHIP PROGRAMS AND MEDICAID

State	Program Type	Joint Application	Outreach	Administration	Data Collection	Quality Assurance	Service Delivery	Procurement	Contracting
Total		25	26	25	25	24	23	18	19
Alabama	COMBO	Y	Y	Y	Y	Y	Y	-	-
Arizona	S-SCHIP	-	Y	Y	Y	Y	Y	-	Y
California	COMBO	Y	Y	-	Y	-	Y	Y	Y
Colorado	S-SCHIP	Y	Y	Y	Y	-	Y	Y	-
Connecticut	COMBO	Y	Y	Y	Y	Y	Y	Y	Y
Delaware	S-SCHIP	Y	Y	Y	Y	Y	Y	Y	Y
Florida	COMBO	Y	Y	Y	Y	Y	Y	-	Y
Georgia	S-SCHIP	Y	Y	Y	Y	Y	Y	Y	Y
Illinois	COMBO	Y	Y	Y	Y	Y	Y	Y	Y
Iowa	COMBO	Y	Y	Y	Y	Y	Y	-	-
Kansas	S-SCHIP	Y	Y	Y	Y	Y	Y	Y	Y
Kentucky	COMBO	Y	-	Y	Y	Y	Y	Y	Y
Maine	COMBO	Y	Y	Y	Y	Y	Y	Y	Y
Massachusetts	COMBO	Y	Y	Y	-	-	-	Y	-
Michigan	COMBO	Y	Y	Y	-	Y	-	Y	Y
Mississippi	COMBO	-	Y	-	-	-	Y	-	-
Montana	S-SCHIP	Y	-	Y	-	-	-	-	-
Nevada	S-SCHIP	-	Y	Y	Y	Y	Y	-	Y
New Hampshire	COMBO	Y	Y	-	Y	Y	-	-	-
New Jersey	COMBO	Y	Y	Y	Y	Y	Y	Y	Y
New York	COMBO	Y	Y	-	Y	Y	Y	Y	-
North Carolina	S-SCHIP	Y	-	Y	Y	Y	-	Y	Y
Oregon	S-SCHIP	Y	Y	Y	Y	Y	Y	Y	Y
Pennsylvania	S-SCHIP	-	Y	Y	Y	Y	-	-	-
Utah	S-SCHIP	-	Y	-	Y	-	-	-	Y

TABLE 6. CONTINUED

State	Program Type	Joint Application	Outreach	Administration	Data Collection	Quality Assurance	Service Delivery	Procurement	Contracting
Vermont	S-SCHIP	Y	Y	Y	Y	Y	Y	Y	Y
Virginia	S-SCHIP	Y	Y	Y	Y	Y	Y	Y	Y
Washington	S-SCHIP	Y	Y	Y	Y	Y	Y	Y	Y
West Virginia	S-SCHIP	Y	-	Y	-	Y	Y	-	-
Wyoming	S-SCHIP	Y	Y	Y	Y	Y	Y	-	-

Source: TableVI.1 in Rosenbach, Ellwood, Irvin, Young, Conroy, Quinn and Kell (2003), 104, available from www.cms.hhs.gov/Reports/downloads/rosenbach_2001_5.pdf; accessed 9 November 2005.
NOTE: The type of SCHIP program is as of March 31, 2001. The state evaluations generally present program characteristics as of September 30, 1999. Analysis includes only 30 States with separate SCHIP programs as of March 31, 2000

The policy problem is that every dollar of the public program that replaces a private dollar already being spent is a dollar that fails to achieve the stated program objective of providing health insurance to the uninsured. To the extent that this occurs, the decline in the uninsured rate will be smaller and fewer improvements in access to care and health status may result. Such substitution may also lead to greater than expected increases in program expenditures (Blumberg, Dubay, and Norton 2000).

SCHIP include approaches to prevent the crowd-out of private insurance. The methods to limit the degree of crowd-out of private insurance include waiting periods, which require that children must be without insurance for a period of time prior to enrollment (commonly 3-6 months); monitoring and application questions regarding children's health care, verifying insurance status against databases of private coverage, benefits and cost sharing to resemble private health insurance coverage, subsidizing employer-based coverage, and imposing obligations on employers or insurers to limit the occurrence of crowd-out (Lutzky and Hill 2001). Imposing waiting periods is the most common strategy used by the states for controlling crowd out. Thirty-seven states required a waiting period without health insurance coverage (Table 7). Of the 37 states requiring children to be uninsured for one or more months before obtaining coverage under SCHIP, 18 had waiting periods less than 6 months, 17 required a 6–month waiting period, and 2 required that children be uninsured for 12 months. Many states report that they allow exceptions to the waiting period when a child became uninsured involuntarily as a result of circumstances beyond the family's control (such as layoffs, job changes, divorce, or the death of a parent). Eighteen states report that their cost-sharing design features (such as premiums, co-payments, or enrollment fees) are explicitly intended to

address crowd-out concerns. Six states also incorporate benefit limits or exclusions to resemble those in private health insurance benefits packages (for example, limits on mental health, durable medical equipment, and therapy services).

Most states gathered information about current and previous insurance coverage to determine eligibility. Not all states used this information for monitoring crowd-out. 30 states had a monitoring process to assess the extent of crowd-out (Table 7). Thirteen states noted that they verified applicants' insurance coverage information with employers. Employer verification typically requires staff to contact the employer, by phone or mail, to verify income, insurance coverage status, and other information, and then to review all the application information before a final eligibility determination can be made.

TABLE 7. FEATURES OF SCHIP PROGRAMS IDENTIFIED TO PREVENT CROWD OUT IN 50 STATES AND THE DISTRICT OF COLUMBIA.

STATE	Alabama	Alaska	Arizona	Arkansas	California	Colorado
Expansion Type	COMBO	M-SCHIP	S-SCHIP	M-SCHIP	COMBO	S-SCHIP
Maximum Eligibility Threshold	200	200	200	100	250	185
Application Questions						•
Cost-Sharing as an Anti-Crowd Out Feature	•		•		•	•
Benefit Limits as an Anti-Crowd Out Feature						•
Subsidizing Employer-Sponsored Coverage						
Monitoring	•		•			•
Obligations Imposed on Employers or Insurers					•	
Verification of Information with Employer		•				
Pursue Insurance Availability of Absentee Parent						
Waiting Period	3 months	12 months	6 months	None	3 months	3 months
When the Waiting Period does Not Apply	When health insurance has been involuntarily terminated.	When income is less than 150 percent of poverty or good cause	When prior coverage was discontinued due to the involuntary loss of employment	N/A	When health coverage was lost due to employment loss or a change in jobs, family moved into an area where ESI is not available, employer discontinued health benefits to all employees, COBRA coverage ended, or child reached the maximum coverage of benefits allowed by current insurance policy.	When employer contributed less than 50 percent of the premiums, or prior insurance lost due to loss of or change in employment.

TABLE 7. CONTINUED

STATE	Connecticut	Delaware	District of Columbia	Florida	Georgia	Hawaii
Expansion Type	COMBO	S-SCHIP	M-SCHIP	COMBO	S-SCHIP	M-SCHIP
Maximum Eligibility Threshold	300	200	200	200	200	200
Application Questions				•	•	
Cost-Sharing as an Anti-Crowd Out Feature	•	•			•	
Benefit Limits as an Anti-Crowd Out Feature	•					
Subsidizing Employer-Sponsored Coverage						
Monitoring	•		•	•		
Obligations Imposed on Employers or Insurers						
Verification of Information with Employer	•				•	
Pursue Insurance Availability of Absentee Parent						
Waiting Period	6 months	6 months	None	None	3 months	None
When the Waiting Period does Not Apply	When coverage was dropped due to good cause or medical insurance is minimal	When loss for good cause such as death or disability of parent, termination of employment, a new job that does not cover dependents, change of address to a county where provider network is not available, expiration of coverage under COBRA, or employer terminates coverage for all employees	N/A	N/A	When health insurance has been involuntarily terminated	N/A

TABLE 7. CONTINUED

STATE	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky
Expansion Type	M-SCHIP	COMBO	COMBO	COMBO	S-SCHIP	COMBO
Maximum Eligibility Threshold	150	185	200	200	200	200
Application Questions			•			
Cost-Sharing as an Anti-Crowd Out Feature		•		•		
Benefit Limits as an Anti-Crowd Out Feature						
Subsidizing Employer-Sponsored Coverage		•				
Monitoring			•		•	•
Obligations Imposed on Employers or Insurers						
Verification of Information with Employer		•				
Pursue Insurance						
Availability of Absentee Parent						
Waiting Period	None	3 months	3 months	6 months	6 months	6 months
When the Waiting Period does Not Apply	N/A	When insurance has been lost through no fault of the family, or is inaccessible, or does not cover physician and hospital services.	When loss of coverage was involuntary or child was previously covered by Medicaid	When the cost of employer-sponsored insurance exceeds 5 percent of gross family income.	When prior coverage has been lost due to loss of employment, coverage was dropped by someone other than the custodial parent, or coverage is not accessible because of distance to providers.	When insurance coverage has been terminated for reasons other than voluntary action by the child or the parents.

TABLE 7. CONTINUED

STATE	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota
Expansion Type	M-SCHIP	COMBO	M-SCHIP	COMBO	COMBO	M-SCHIP
Maximum Eligibility Threshold	150	185	200	200	200	280
Application Questions	•		•		•	
Cost-Sharing as an Anti-Crowd Out Feature				•		
Benefit Limits as an Anti-Crowd Out Feature				•		
Subsidizing Employer-Sponsored Coverage				•		
Monitoring	•	•			•	
Obligations Imposed on Employers or Insurers			•			
Verification of Information with Employer	•	•		•		
Pursue Insurance Availability of Absentee Parent	•					
Waiting Period	3 months	3 months	6 months	None	6 months	None
When the Waiting Period does Not Apply	None reported	When the employer contributes less than 50 percent of the premiums, or the family pays over 10 percent of income for family coverage, or the child lost coverage for a reason other than to get coverage.	When loss of coverage was due to involuntary termination.	N/A	When insurance coverage was lost involuntarily due to layoff, business closing, or similar circumstance.	N/A

TABLE 7. CCONTINUED

STATE	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire
Expansion Type	COMBO	M-SCHIP	S-SCHIP	M-SCHIP	S-SCHIP	COMBO
Maximum Eligibility Threshold	200	300	150	185	200	300
Application Questions						
Cost-Sharing as an Anti-Crowd Out Feature	•	•		•		
Benefit Limits as an Anti-Crowd Out Feature		•				
Subsidizing Employer-Sponsored Coverage						
Monitoring		•	•	•		•
Obligations Imposed on Employers or Insurers						
Verification of Information with Employer		•				
Pursue Insurance						
Availability of Absentee Parent						
Waiting Period	6 months	6 months	3 months	None	6 months	6 months
When the Waiting Period does Not Apply	None reported	When loss of employment was due to factors other than voluntary termination; employer does not provide dependent coverage; expiration of COBRA; lapse of coverage when maintained by an individual other than the custodial parent or guardian; or when lifetime maximum benefits under private insurance have been exhausted.	When parent or guardian dies; was fired or laid off; can no longer work due to a disability; has a lapse in insurance coverage due to new employment; or employer no longer offers dependent coverage.	N/A	When insurance coverage terminated due to no fault of applicant.	When insurance coverage terminated for good cause, including loss of employment; change of employment to an employer who does not provide dependent coverage; death of the employed parent; employee was laid of; or voluntary job loss for good cause.

TABLE 7. CONTINUED

STATE	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio
Expansion Type	COMBO	M-SCHIP	COMBO	S-SCHIP	COMBO	M-SCHIP
Maximum Eligibility Threshold	350	235	192	200	140	200
Application Questions				•	•	
Cost-Sharing as an Anti-Crowd Out Feature	•			•		
Benefit Limits as an Anti-Crowd Out Feature	•					
Subsidizing Employer-Sponsored Coverage						
Monitoring	•		•	•		•
Obligations Imposed on Employers or Insurers						
Verification of Information with Employer						
Pursue Insurance						
Availability of Absentee Parent						
Waiting Period	6 months	12 months	None	2 months	6 months	None
When the Waiting Period does Not Apply	When paying for an individual health plan or COBRA, or prior coverage was lost due to employer going out of business, employee was laid off, or changed jobs.	When the child moves out of state; is incarcerated in a juvenile corrections facility; or the child loses coverage through involuntary means.	N/A	When the child has special health care needs or is a Medicaid graduate, or insurance was lost through no fault of the family	When insurance was lost through no fault of the family.	N/A

TABLE 7. CONTINUED

STATE	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota
Expansion Type	M-SCHIP	S-SCHIP	S-SCHIP	M-SCHIP	M-SCHIP	COMBO
Maximum Eligibility Threshold	185	170	200	250	150	200
Application Questions			•			•
Cost-Sharing as an Anti-Crowd Out Feature						
Benefit Limits as an Anti-Crowd Out Feature						
Subsidizing Employer-Sponsored Coverage						
Monitoring		•	•	•		•
Obligations Imposed on Employers or Insurers						
Verification of Information with Employer				•	•	
Pursue Insurance Availability of Absentee Parent						
Waiting Period	None	6 months	None	4 months	None	3 months
When the Waiting Period does Not Apply	N/A	When the child has a life-threatening condition or disability or was previously enrolled in the Oregon Health Plan	N/A	When coverage would have cost $50 or more per month per family	N/A	When lack of insurance is beyond the caretaker's control; the cost of insurance coverage exceeds five percent of the family's gross income; lapse in insurance due to loss of employment, temporary unemployment, lay off, or new employer does not provide coverage immediately upon employment; parent providing the insurance becomes disabled or dies; or employer does not provide dependent coverage or discontinues insurance coverage.

TABLE 7. CONTINUED

STATE	Tennessee	Texas	Utah	Vermont	Virginia	Washington
Expansion Type	M-SCHIP	COMBO	S-SCHIP	S-SCHIP	S-SCHIP	S-SCHIP
Maximum Eligibility Threshold	100	200	200	300	200	250
Application Questions					●	●
Cost-Sharing as an Anti-Crowd Out Feature			●			●
Benefit Limits as an Anti-Crowd Out Feature			●			
Subsidizing Employer-Sponsored Coverage						
Monitoring		●	●		●	
Obligations Imposed on Employers or Insurers						
Verification of Information with Employer	●	●	●			
Pursue Insurance						
Availability of Absentee Parent						
Waiting Period	None	3 months	3 months	1 month	6 months	4 months
When the Waiting Period does Not Apply	N/A	None reported	When coverage was involuntarily terminated.	When insurance is lost due to loss of employment, death or divorce, or other loss of eligibility as a dependent under a parent's policy.	When loss of coverage was due to good cause.	When the child has a life threatening condition or disability or when loss of coverage is due to loss of employment; death of employee; employer discontinues coverage; family's out-of-pocket maximum is $50 or more per month; the plan terminates coverage because the individual reached a lifetime limit; COBRA coverage ends; coverage is not reasonable available; or domestic violence leads to loss of coverage.

TABLE 7. CONTINUED

STATE	West Virginia	Wisconsin	Wyoming	Total (states)
Expansion Type	S-SCHIP	M-SCHIP	S-SCHIP	
Maximum Eligibility Threshold	200	185	133	
Application Questions				14
Cost-Sharing as an Anti-Crowd Out Feature		•		18
Benefit Limits as an Anti-Crowd Out Feature				6
Subsidizing Employer-Sponsored Coverage				2
Monitoring	•	•		30
Obligations Imposed on Employers or Insurers				2
Verification of Information with Employer				13
Pursue Insurance Availability of Absentee Parent				1
Waiting Period	6 months	3 months	1 months	37
When the Waiting Period does Not Apply	When the employer terminates coverage; involuntary layoff; private insurance is not cost-effective; child loses coverage due to parent's job change; or loss of coverage was outside the control of an employee.	When lack of insurance was due to involuntary loss of employment; new employer does not offer coverage; employer discontinues coverage for all employees; or COBRA coverage ends.	When the parent providing the primary insurance is laid off, fired or can no longer work because of a disability or has a lapse in coverage due to job change.	

Source: Lutzky and Hill (2001) and TableVIII.1 in Rosenbach, Ellwood, Irvin, Young, Conroy, Quinn and Kell (2003), 49, Available from www.cms.hhs.gov/Reports/downloads/rosenbach_2001_5.pdf; accessed 23 September 2005.

Chapter III

The Crowding Out of Private Health Insurance of State Children Health Insurance Program

Introduction

The issue on crowd-out for private health insurance under SCHIP expansion is controversial among policy makers, administrators and researchers, because as income eligibility for SCHIP increases more than in Medicaid expansions before, the newly eligible children are likely to substitute SCHIP for privately provided benefits. Bansak and Raphael (2005) find that between one quarter and one third of the increase in public health insurance coverage for SCHIP eligible children is offset by a decline in private health coverage. LoSasso and Buchmueller (2004) explained that the majority of children made eligible for public insurance under the program already had private health insurance coverage. One of the behavioral responses to becoming eligible for SCHIP benefits is the employer's response that they encourage employees eligible for public benefits to seek public coverage. Employers that are aware that the children of their employees are eligible for a new state program may cease to offer health insurance to family members and encourage employees to seek public benefits. Shore-Sheppard, Buchmueller, and Jensen (2000) examine the mechanism by which crowding out occurs for small firms. They find no evidence of employers changing insurance offerings to workers following

the expansions. However, they find a negative relationship between Medicaid eligibility of a firm's employees and the take-up rate for health insurance offered by the firm. Our study extends the previous literature by using actual SCHIP coverage variable in 2001 SIPP (Survey of Income and Program Participation) panel to estimate the crowd-out effect of private coverage for children who had private health insurance at the first stage of the survey and those who initially were uninsured.

The question of the extent of crowding out of private insurance resulting from Medicaid expansions has been controversial with the literature producing a wide of estimates from considerable to negligible (Blumberg, Dubay, and Norton 2000; Card and Shore-Sheppard 2003; Cutler and Gruber 1996; Dubay and Kenney 1996; Shore-Sheppard, Buchmueller, and Jensen 2000; Yazici and Kaestner 2000). However, there are several constraints that prevent the application of the results from previous literature of Medicaid expansions for the new SCHIP. The first potential difference is that the proportion of new enrollees into the SCHIP who previously had private coverage is likely to be higher than under the Medicaid expansions, as families with higher income are eligible for SCHIP. The higher the SCHIP eligibility climbs, the greater the possibility of interaction between the public and private insurance markets, the greater the potential for, and the more difficult it will be to measure, crowd-out. The second difference is the flexibility of SCHIP coverage expansions. The third potential difference is the structure of SCHIP programs. States have three options to implement their SCHIP expansions: Separate SCHIP, Extended Medicaid and Combined SCHIP.[19] States have the option to implement their SCHIP coverage expansions through Medicaid (i.e., SCHIP kids use Medicaid providers) or through other state-designed plans. Depending upon the structure

[19] We provide detailed features of these three SCHIP implementation options in chapter II.

of SCHIP programs that state chooses, the extent of crowd out of private coverage could be vary from one under the Medicaid expansions. The fourth difference is that states are required to develop anti-crowd-out strategies under the SCHIP program. For example, many states require mandatory waiting periods following the loss of private health benefits before the children in a family become eligible for SCHIP benefits.

Our study estimates the crowd-out of private health insurance following SCHIP expansions for children. We use panel data from the 2001 panel of the Survey of Income and Program Participation (SIPP), a longitudinal household survey designed to provide detailed information on the economic circumstances of the noninstitutionalized civilian U.S. population. Individuals in the SIPP are interviewed every 4 months about employment and program participation during the previous four months, so that changes are discovered quickly and even temporary states are not likely to be missed. We contrast observed transitions in coverage for a treatment group of children who newly gained eligibility and thus were more affected by the SCHIP expansions with transitions for a control group of children who were not affected by the SCHIP expansions. The treatment group consists of children who gained eligibility without changes in their family income as a result of the expansions, and the control group consists of children who either were always eligible or never eligible for SCHIP, again with no changes in their family income during survey periods.[20]

[20] We define any changes in family income as changes in family income level for SCHIP income eligibility threshold during survey period. For example, when a family income was eligible for SCHIP at the first interview, and still eligible for SCHIP at the last interview, we consider this family does not have any gain or loss in family income. However, when a child was eligible for SCHIP at the first interview, but became ineligible at the last interview due to the decrease (or increase) in family income, then, we set this child also as control group. Consequently, the treatment group are children who gain SCHIP eligibility because of the expanded income eligibility level and remain income-eligible throughout the study period.

We find that about 25.7 percent of the transitions from private coverage into SCHIP coverage were made by children who would have had private coverage in the absence of the expansions. This paper provides evidence that the SCHIP expansions have overall displacement effect of 52.9 percent for private coverage for those children who had private coverage or were uninsured from the first interview in 2001.

Literature review

Since the Medicaid expansion mandated by Congressional Omnibus Budgetary Reconciliation Acts (OBRA) 88 and OBRA 89 has been implemented, policymakers, administrators, and researchers have developed a definition of crowd-out. The researchers estimated how the extended Medicaid eligibility would affect poor and near-poor children and parents using various methods. In many empirical papers for public program crowd-out of private coverage, researchers typically compare the reduction in the share of the population with private coverage to the increase in the share of the population with public coverage due to the expansion. Estimates of crowd-out for Medicaid expansions range from zero percent (Ham and Shore-Sheppard 2003) to 49 percent (Cutler and Gruber 1996). The estimate of crowd-out of private coverage in SCHIP by Cunningham, Hadley and Reschovsky (2002), who use Community Tracking Study data between 1996 and 1999, find results that vary from 38 percent to 77 percent. LoSasso and Buchmueller (2004) find 50 percent crowd-out of private coverage in children with income between 100 percent and 200 percent of the Federal Poverty Line. We will present the limitations

of two papers on the crowd-out effect of SCHIP in the next sections, and then provide the new contribution of this paper.

Cross-sectional studies

Cross-sectional studies measure crowd-out that occurred from public coverage expansions by examining the changes of insurance coverage of observed populations. Cross-sectional studies compare changes in insurance status of specific public program-eligible populations before and after expansions to that of non-eligible populations by using cross-sectional data, and estimate the share of new public enrollees who are likely to displace private coverage with public benefits.

Unlike longitudinal data, the cross-sectional studies cannot detect the direct transitions from one insurance coverage to another insurance state at the individual level. In fact, because there is no information on why changes in the insurance status of a specific individual happens, cross-sectional analysis is limited to observing the actual movement of different individuals from private coverage to Medicaid (or SCHIP), and from private coverage to uninsurance.

One group of cross-sectional studies has used pooled cross-sectional data from the Current Population Survey (CPS) to investigate the effects of Medicaid eligibility expansions on the health insurance status of children. An important study in the crowd-out literature is Cutler and Gruber (1996). The authors define crowd-out in three ways. The first definition of crowd-out is the decrease in private coverage as a share of the

individuals who became eligible for Medicaid after the expansions. A second way to define crowd-out is the decrease in private coverage as a share of the total increase in Medicaid enrollment. A third definition of crowd-out is the percentage decline of private coverage over time that can be attributed to Medicaid enrollment.

The authors estimate a multivariate model of the effects of Medicaid eligibility on insurance status using the pooled data from the CPS for the years 1988 to 1993, controlling for a variety of personal characteristic, geographic and time variables. They take advantage of within- and across-state variability of Medicaid eligibility before and after the 1988 and 1989 OBRA mandates to study changes in insurance status for the newly eligible population of women and children. They find that the likelihood of public coverage increases as Medicaid eligibility levels grow over time. They estimate that a 10 percentage-point increase in Medicaid eligibility increased Medicaid coverage by 2.35 percentage points and reduced private coverage by 0.74 percentage points. Measuring crowd out as the ratio of these two coefficients (definition 2) implies that 31 percent of the rise in Medicaid coverage due to the expansions came from private coverage. Thus, the authors conclude that these results strongly support the substitution of Medicaid coverage for the private coverage. The authors conclude that between 31 and 49 percent of the increase in Medicaid coverage among children was due to a decrease in private insurance coverage of children.

Dubay and Kenney (1996) also use the CPS for 1989 and 1993 to examine the extent of crowd-out effects of Medicaid expansions. They attempt to estimate the crowd-out effect by comparing the change in coverage for the target group affected by eligibility expansions with a control group not affected by the expansion. Unlike Cutler and Gruber

(1996) or Shore-Sheppard (2003), they focus on two different target populations: children from families with incomes below 100 percent of poverty (poor children less than 11years of age), and children from families with incomes between 100 and 133 percent of poverty (low-income children less than 11years of age). The control group consists of men ages 18 to 44 in each of those populations. They estimate that 17 percent of the total increase in enrollment among low-income children occurring during the Medicaid expansion period as the result of replacing public benefits with private coverage, and 14 percent of the increase in Medicaid coverage among pregnant women is attributable to substitution of public for private coverage.

Shore-Sheppard (1997) uses CPS data from 1988, 1993, and 1996 to study crowd out in a manner similar to that of Cutler and Gruber (1996). The author defines crowd-out as decrease in private insurance coverage due to Medicaid expansions for low-income children, then regresses changes in insurance coverage (private or Medicaid) between 1998 and 1993 on changes in the fraction eligible between these two time points. Her estimate of the percent of children newly eligible through the expansions who came from private coverage calculated as a ratio of the coefficients from the private and Medicaid regressions, is approximately 15 percent for the period 1988-1993, and 41 percent for 1998-1996. Her empirical strategy differs from that of Cutler and Gruber (1996) in using only the first and last years of the relevant period and not the year-to-year changes in eligibility and coverage. This use of long differences may eliminate some fluctuations resulting from short-run adjustment effects, but it has the disadvantage of not using all of the possible variation, and the magnitude of the estimate is dependent on the endpoints chosen.

LoSasso and Buchmueller (2004) present a national estimate of the effects of SCHIP using the CPS data on insurance coverage during the years from 1996 to 2000. They use the instrumental variables regressions of insurance coverage to estimate the overall effect of SCHIP eligibility on public and private insurance coverage of children. They found that the program has a small but positive effect on reducing the percentage of uninsured children. They conclude that nearly 50 percent of the increase in SCHIP coverage among enrolling children (100-200 percent FPL) is attributable to crowd out for private coverage. There are several limitations to this study. First, as the authors speculate, this study did not include sufficient variables of state program policies to identify the differences among states implementing SCHIP. Second, CPS data prior 2001 did not collect any information on SCHIP health insurance coverage. The results estimated from only the increase of public health insurance may not be precise without actual observations of changes of SCHIP coverage. Finally, as generally with studies using cross-sectional data, this paper has difficulties in directly capturing changes in insurance status of the same individual over time because the sample of respondents changes each year.

In all four of the above studies, researchers are challenged to disentangle changes in private insurance that occur for reasons other than Medicaid expansion, using data that were not designed to answer these questions.

Longitudinal studies

The previously cited studies use cross-sectional data, which provide snapshots of insurance coverage at several different times; however, cross-sectional studies do not allow direct examination of change over time. In contrast, longitudinal studies provide direct information on how Medicaid expansions affect insurance status changes at the individual level over time, thus measuring changes in insurance status more directly.

This type of study estimates crowd-out by estimating the insurance changes of the same persons over a period of time after a Medicaid coverage expansion. However, the major weakness of longitudinal studies is the size of the sample available to evaluate the public program and lack of state-specific information.

Two studies examine data from the National Longitudinal Survey of Youth (NLSY). Thorpe and Florence (1998) present a different type of analysis of crowd out using panel data from the 1989 to 1994 waves of NLSY. They examine changes between 1990 and 1994, since in this period, enrollment in private coverage was declining for many other reasons unrelated related to the Medicaid expansions. They estimate the fraction of children newly enrolled in Medicaid in a year who had private coverage in the previous year. They measure crowding out as the fraction of children who move from private coverage to Medicaid but whose parents retain private coverage. They find that between 2 and 23 percent of previously privately insured children who enroll in Medicaid had parents who retained private coverage, depending on the year considered and the income level of the family. They conclude that 16 percent of the new Medicaid enrollees in 1990 and 1994 represented a crowding-out of private insurance. In other word, 16

percent of children newly enrolled in Medicaid had parents who replaced private coverage with pubic benefits only for their children.

Yazici and Kaestner (2000) use panel data from the 1988 to 1992 waves of NLSY. They use a difference-in-difference approach to examine substitution. They attempt to estimate substitution by comparing changes in public and private coverage for a target group with those for control group. Their target group consists of low-income children who were newly eligible for Medicaid in second year as a result of the Medicaid expansions and had family income loss, and those who are newly eligible for Medicaid in second year and did not have family income loss. The control group of low-income children consists of low-income children who either were always or never eligible for Medicaid in both years and either did or did not have family income loss. They estimate that overall 19 percent of new enrollment of Medicaid coverage was attributable to crowd-out. However, the estimation for replacement Medicaid coverage with private insurance coverage ranges from 0 percent to 47.4 percent. This wide range of estimates results from the various types of treatment and comparison group estimated. For example, the treatment group consists of children who became Medicaid eligible because of increases in the income-eligibility threshold. In other words, these children's family incomes stayed relatively constant, but because of the higher income eligibility threshold they became eligible for Medicaid. For the treatment group, they use children who were never eligible and whose family did not suffer an income loss as a control group. In this case, their difference-in-difference estimates indicate an insignificant percentage-point increase in private insurance and a significant 22.4 percentage-point increase in Medicaid

enrollment. Since there was no decline in private insurance coverage for this group, the estimate of crowd out is zero.

Blumberg, Dubay and Norton (2000) use a difference-in-difference approach to explain the extent of crowd out of Medicaid expansions with 1990 SIPP longitudinal data. They compare changes in health insurance coverage for low-income young children (ages 1 to 6) living in poor and near-poor families as treatment group to changes in insurance coverage for older children (ages 7 to 11) living in poor and near-poor families as control group not affected by Medicaid expansion. They conclude that, for children who already had private coverage, about 23 percent of the movement from private insurance to Medicaid was due to the displacement of private coverage and the extent of substitution of public for private coverage for children who began the panel uninsured was zero percent. However, these estimates are calculated using statistically insignificant regression coefficients, and thus are likely to be quite imprecise.

Cunningham, Hadley and Reschovsky (2002) use 1996-1997 and 1998-1999 longitudinal data from the Community Tracking Study to examine the effects of increases in eligibility for public coverage through SCHIP expansions on children's health insurance coverage. By combining data from surveys conducted both before and after the implementation of SCHIP, they employ a difference-in-differences approach to examine changes in coverage among states that experienced a large increase in eligibility with states that experienced little or no increase in eligibility. The parameters for the baseline eligibility in their model capture the effects of cross-sectional differences in eligibility across states and communities on coverage prior to SCHIP. Like Blumberg, Dubay, and Norton (2000), they use a multivariate model that controls for other factors among

children that may be correlated with health insurance coverage across the state. They find that SCHIP expansion increased public coverage among SCHIP target group (low-income children between 100 and 200 percent of poverty). They conclude that 38 percent of the increase in public coverage among children in SCHIP target group was the result of replacement of private coverage with public coverage. However, this result is simulated through the predicted probabilities for each of the 1998-1999 observations in their sample, assuming that eligibility remained at 1996-1997 levels. Therefore, the significance of their result on crowd-out effect of SCHIP is unknown. In addition, the data used for their study capture the very early stages of SCHIP implementation and therefore do not reflect the increases in enrollment observed since 1999 (Rosenbach et al. 2003).

New contribution

Our paper extends the previous literature using a difference-in-differences approach to examine whether and to what extent the SCHIP expansions for children displace private coverage. We compare the health insurance coverage transitions in children mostly affected by the SCHIP expansion to children less affected by the SCHIP expansion between the first interview and the last interview of the 2001 SIPP waves. The previous literature on SCHIP expansions compared the reduction in the share of the population with private coverage to the increase in the share of the population with public

coverage due to the expansion without any actual dataset of SCHIP coverage.[21] It is preferable to use longitudinal data when estimating crowd-out effects or take-up rates over time in public health insurance programs (Dubay and Kenney 1996; Holahan, Winterbottom, and Rajan. 1995). There are many complex factors that can affect the transitions of health insurance coverage over the period of SCHIP expansions. Although a recent paper (Cunningham, Hadley, and Reschovsky 2002) on SCHIP extension uses longitudinal data (Community Tracking Study) to study the effect of crowd-out caused by SCHIP, as we mentioned in previous section, this paper has several limitations, especially in estimation on the effect of crowd-out.

Therefore, the primary contribution of this paper is analyzing actual SCHIP coverage transitions among low-income children (especially among the newly eligible population) by using 2001 SIPP panel, because from 2001, SIPP data include the information of the SCHIP coverage in their survey. These data allow us to directly track changes in the health insurance coverage of children during the years of the SCHIP expansions. These estimation results provide better measures of the crowd-effect of SCHIP while controlling for the effect of other factors affecting coverage decisions by separating newly eligible children from the whole population of children.

[21] In fact, the dataset on SCHIP coverage have collected since 2001.After 2001, none of the previous studies have used SIPP data for analysis on public health insurance policy.

Theoretical crowd-out effect of SCHIP on private coverage

Consider a family who has a newly eligible child or children for SCHIP expansion, deciding on their insurance policy. For simplicity, we assume that a consumer purchases an individual health insurance policy and that policies differ only in the generosity of health insurance plan. For example, a consumer who has more generous health insurance plan is provided with a greater range of providers or covered with a wider set of medical services. In figure 4 through 6, both health insurance and other goods are measured in dollar units. A consumer makes a choice between more preferred health insurance policy and other goods. While people shown in figure 5 and 6 value health insurance highly and choose the highest medical services, those expressed in figure 4 value health insurance less highly. Prior to SCHIP expansion, a consumer faces a budget line for health insurance with a slope of -$1 and y-intercept equal to her money income. The budget constraint for her money income of OA is expressed as ABC in figures 4 through 6.

Now the government provides consumers public health insurance like SCHIP with generosity S. In our paper, because of possible stigma associated with public coverage and transaction cost, we set the value of SCHIP below that of private health insurance. Indeed, Currie (2003) suggests that the stigma associated with receiving public benefits may be larger when recipients are forced to divulge personal information on applications. Cunningham (2001) finds evidence that low take-up rates for SCHIP are likely due to stigma, lack of awareness. Also, Currie (2003) posits that transaction costs per child are likely to be higher for households with fewer children and higher income

households that have never received public assistance. Also, private coverage is likely to cover the entire family in a single plan. This may mean a parent obtains coverage which would otherwise be uninsured, or it may mean that the family can more easily use the benefit because of having a single plan.

Because consumers have no choice to see higher quality providers by paying more on the margin, individual consumption of public health insurance is exactly the amount S. Thus, the budget line with this new public health insurance is ASBC. Any individual who would prefer to consume a higher quality health insurance returns to the original budget line, ABC. The theoretical crowd-effect of SCHIP on private insurance may be elaborated by focusing on the segments AB and BC of the original budget constraint in figures 4 through 6. The maximized consumption equilibrium points of equally wealthy consumers of health insurance would be distributed along the whole of ABC. Figure 4 shows the group of consumers with consumption-equilibrium points on the segment AB. The introduction of SCHIP leads consumers to increase their total consumption of health insurance. The income effect of SCHIP would generate higher consumption for every member of this group. In other words, consumers with low value of private health insurance are likely to drop their private insurance and enroll in the new public insurance, SCHIP. For this group of consumers, we have theoretical expectation on the crowd-out effect of SCHIP on private insurance. Now, we consider the group of consumer valuing private health insurance highly on segment BC. A consumer whose indifference curve is both tangent to BC and passes below point S in figure 5 will replace private health insurance with SCHIP, because the bundle of goods at S is preferred to the best attainable on original budget line, BC. However, the bundle that would be chosen on

BC contains more dollars' worth of private health insurance than does new consumption-equilibrium, S. People whose indifference curves are both tangent to BC and passes above point S will retain their private insurance (figure 6). The introduction of SCHIP to this last group of consumer would leave individual consumption unchanged from the original level.

The primary empirical prediction that can be said is that, for any given level of income, the larger the amount of subsidized public health insurance, the greater the probability that consumer replaces private insurance with public health insurance like SCHIP. That is, the larger AS is relative to OA (or OC), the longer AB is relative to BC. Also, the higher people value public health insurance relative to the private coverage quality, the greater the probability that they are likely to drop their private insurance and enroll in SCHIP. However, empirical testing of this theoretical prediction is impossible, since we do not know the desired value of the private and public health insurance for any individual. Thus, while not estimating the crowd-out effect of SCHIP through the underlying individual health insurance demand function, we contrast observed transitions in coverage of individuals who newly gain eligibility for SCHIP with transitions for those who were less unaffected by the SCHIP expansions. We will discuss in section III-6 the specific strategy for the estimation of individuals' responsiveness on SCHIP and private insurance coverage.

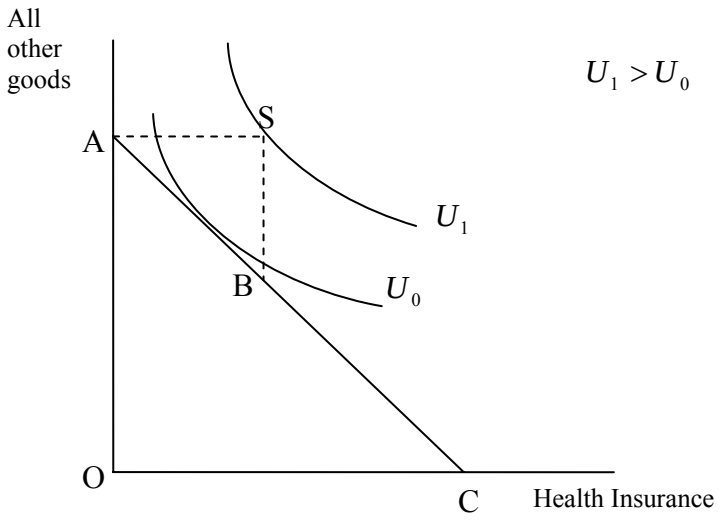

Figure 4. The crowd-effect of SCHIP on private health insurance: the case of consumer with low values of private health insurance.

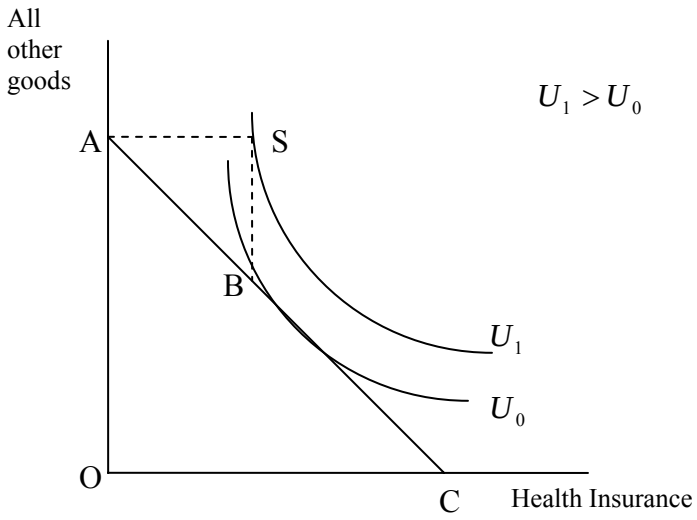

Figure 5. The crowd-effect of SCHIP on private health insurance: the case of consumer with high values of private health insurance, affected by SCHIP expansion.

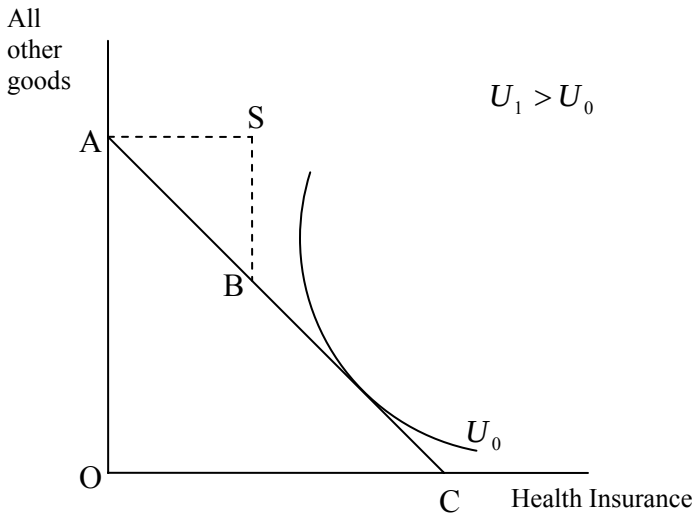

Figure 6. The crowd-effect of SCHIP on private health insurance: the case of consumer with high values of private health insurance, unaffected by SCHIP expansion

Descriptive evidence and data sources

Crowd-out of private health insurance will tend to occur in instances where eligible individuals find that public coverage is less costly or more comprehensive than their private coverage. For example, most of the proposed Medicaid or SCHIP expansions require little or no premiums or out-of-pocket cost sharing,[22] while most employer plans require employee premium contributions and co-payment. Consequently, some individuals are likely to shift to Medicaid or SCHIP as they become eligible, potentially with the encouragement of employers. Perhaps more importantly, persons who enroll while uninsured may continue with the program as long as they remain eligible, even if they subsequently become employed in a job that offers health coverage. The potential for crowd-out increases as income eligibility levels rise, because the percentage of persons with private coverage tends to increase with income (Table 8). Because the SCHIP eligibility income cutoff is higher than for the Medicaid expansions in their state, crowd-out under the SCHIP program is likely to be greater than under the Medicaid expansions. Because 'screen and enroll' provisions create a spillover effect of SCHIP on Medicaid enrollment, even the degree of substitution in Medicaid coverage can be higher than before the SCHIP expansion.

Table 8 presents the proportion of children under 15 for health insurance type by relative Federal Poverty Level and year, and changes of proportion for health insurance type. Between 2001 and 2003, the overall proportion of children with private health insurance decreased by 0.9 percentage points, while overall proportion of children with

[22] Over half of states require premiums for SCHIP. However, they are generally small compared to ESI (Employer-Sponsored Insurance) premiums.

public health insurance increased by 1.1 percentage points. Several papers have studied the long-term decreases in the percentage of Americans who have private coverage (Fronstin and Snider 1997; Holahan, Winterbottom, and Rajan. 1995). In Cutler and Gruber (1996), they concluded that expanded coverage to children through Medicaid has contributed to this decline.

Table 8 also shows the decline in proportion of children without any health insurance by 0.2 percentage points. Interestingly, among children with public health insurance, the proportion of children with SCHIP increased more than the proportion with Medicaid by 0.7 percentage points. Among children in families with incomes between 100 and 300 percent of the federal poverty level, the proportion of SCHIP in health insurance coverage increased from 4.4 percent in 2001 to 5.3 percent in 2003, while the proportion of children covered by Medicaid benefits decreased by 0.2 percentage points. As expected, the proportion of children with family incomes below 100 FPL who have public coverage is larger than that of children in families with income between 100 and 300 percent of the poverty line. This initial look at the data suggests that concerns about potential crowd out are well founded. Table 8 indicates that while private coverage decreased for children in families with all income poverty levels, there are notable increases in public coverage.

TABLE 8. PROPORTION OF POOR AND NEAR-POOR CHILDREN (BELOW 300 FPL) 15 AND UNDER COVERED BY HEALTH INSURANCE BY TYPE

	2001 (%)	2002 (%)	2003 (%)	Change (%)
Overall FPL				
Private	67.4	66.9	66.5	-0.9
Uninsured	12.0	11.6	11.8	-0.2
Public	20.7	21.5	21.7	1.1
Medicaid	17.5	18.0	17.8	0.2
SCHIP	3.1	3.5	4.0	0.9
Above 100FPL and below 300FPL				
private	67.4	68.2	67.0	-0.4
uninsured	14.5	14.0	14.0	-0.5
public	18.3	17.9	19.0	0.7
Medicaid	13.9	13.2	13.7	-0.2
SCHIP	4.4	4.7	5.3	0.9
less 100FPL				
private	23.6	20.6	20.9	-2.8
uninsured	20.0	19.5	19.7	-0.3
public	56.4	60.0	59.5	3.1
Medicaid	51.5	54.1	53.0	1.4
SCHIP	4.9	5.9	6.5	1.6

Note: Figures are calculated from 9 waves in the 2001 SIPP longitudinal survey data. We present the average proportion of 3 waves for each year. Individuals in the SIPP are interviewed every 4 months about employment and program participation during previous for months. Each 4-month period is called "wave." Overall FPL includes all children. Percentages of change are calculated the difference between 2001 and 2003. The public coverage is presented as a sum of proportion of Medicaid and SCHIP coverage in this table.

Table 9 presents the health insurance status at the first reference month of the 2001 SIPP panel for children who are enrolled in SCHIP at the last interview. These descriptive figures provide some indication for the trend of health insurance status. First, only 40 percent of the children who have SCHIP coverage at the last period are covered by public health insurance (25 percent with Medicaid and 15 percent with SCHIP) in the

first period. In Thorpe and Florence (1998), 73 percent of children receiving Medicaid in 1994 were covered by Medicaid in 1993. Second, 26 percent of the children who have SCHIP coverage at last period are not covered by any insurance coverage in the first period. This rate is considerably higher than the proportion during Medicaid expansions in 1994. In the study by Thorpe and Florence (1998), only 14 percent of children covered by Medicaid in 1994 were uninsured in the previous year. Finally, 35 percent of children have private coverage at the first interview. As expected, the share of children in SCHIP with initial private coverage is higher than under Medicaid expansions due to the increased income eligibility. [23] To obtain descriptive evidence on the crowd-out of private insurance by SCHIP expansions, we track the health insurance status of children who reported SCHIP coverage at the last interview and test whether they retain the initial private coverage.

TABLE 9. DISTRIBUTION OF CHILDREN'S INITIAL HEALTH INSURANCE COVERAGE AMONG NEW SCHIP ENROLLEES

	Distribution (%)	Standard Errors
Private	34.4	0.475
Medicaid	24.8	0.433
SCHIP	14.7	0.354
Uninsured	26.1	0.44

Note: Tabulations from the SIPP 2001 panel. Size of sample is 463 individuals.

[23] In Thorpe and Florence (1998), the authors find that 9.7 percent of children had employer-sponsored coverage in the year prior to receiving Medicaid in 1994, and 1.9 percent of children had non-group coverage.

Because health insurance coverage is dynamic in nature, we need to observe an individual's health insurance status over an extended period of time. As previously stated, the goal of this paper is to estimate the crowd-out effect of SCHIP for private coverage by tracking direct changes in the transition of the health insurance coverage of low-income children. The 2001 panel of SIPP includes the data for SCHIP health coverage of individual. This is a nationally representative longitudinal database that allows us to track insurance coverage transitions over the 32-month period during which the SCHIP enrollment was growing. [24] The 2001 panel of SIPP covers the period from April 2001 to December 2003.

The SIPP has several advantages for studying the question of SCHIP participation and the crowding out of private health insurance among children. First, unlike other surveys that occur annually, data collection of the SIPP occurs three times per year (each 4-month period is called a "wave" and some data sets are collected per month). Second, the SIPP provides more detailed data on income and program participation. Consequently, because the movement between different insurance states can be observed, the SIPP dataset can provide answers for certain questions that cannot be answered at all using cross-sectional datasets.

We identify three types of health insurance coverage status from the reported multiple types of health insurance coverage as follows: "Private coverage" as those who report they are covered by private coverage (private coverage includes children covered

[24] Most states began to implement their SCHIP programs in 1998 and 1999. Federal government encouraged states to enhance the program through the federal financial contribution to lower the rates of uninsurance among low-income children. Enrollment began in January 1998 and increased rapidly over the first four years. By December of 2001, the number of children with SCHIP coverage had reached 3.4 million, and by December 2003, enrollment had increased to more than approximately 6 million children. For more detailed information, see http://www.kff.org/medicaid.

by employer-based, privately purchased, and military health insurance); "SCHIP coverage" as those who reported they are covered by SCHIP (including those who report both private coverage and SCHIP); "Medicaid coverage" as those who reported they are covered by Medicaid (including those who report both private coverage and Medicaid); and "Uninsured status" as those who reported they are covered by neither private insurance nor any public coverage (the uninsured category includes all children for whom a specific type of coverage is not reported).

The Census Bureau does not identify the states of residence for individual from North Dakota, South Dakota, Maine in Combination Program; Vermont and Wyoming. This information is necessary to impute SCHIP eligibility cutoffs. Thus, our analysis sample includes only children whose state of residence is identified. We drop children who leave the original sample households interviewed in the first wave. We also restrict our sample to children who are younger than 16 years old at the first interview, since children above 15 years old are not eligible for the SCHIP program in the last interview. In Tables 10 through 12, we present the sample means for initial health insurance coverage and other socio-economic characteristics for the treatment group (children who gained eligibility as a result of the expansions without changes in family income) and control-group (children who either were always eligible for Medicaid or never eligible for SCHIP without changes in family income). We used self-reported total family earned income relative to the federal poverty line to gauge the income eligibility cutoffs for both Medicaid and SCHIP. According to Rosenbaum and Markus (2002), "the majority of state plans lacked clarity on the income standards and methodologies they would apply to determine eligibility under separately-administered SCHIP programs." States with

separate child health programs often do not clearly define their income eligibility criteria. Thus, for consistency and simplicity, we apply the Medicaid income definitions to all states. We calculate the income eligibility cutoffs by dividing the self-reported total family earned income by the family-size specific federal poverty line for 2001 (first interview). We identify treatment group of children eligible for SCHIP benefits by identifying children who meet the SCHIP family income criteria and age listed in Table 3, but did not meet the Medicaid criteria in the first interview.

Methods and estimation strategy

Analytic strategy

We estimate to what extent the children who newly gain eligibility for SCHIP substitute public health benefits for private health coverage by examining how health insurance coverage of low-income children changes from the first interview to the last interview of the 2001 SIPP survey. Ideally, we would draw a sample based on data collected prior to the SCHIP expansions, but only the 2001 SIPP data set has information on the actual SCHIP coverage variable. According to CMS SCHIP enrollment reports, for every fiscal year, SCHIP enrollment increased over 2000 and 2001 levels due to the outreach effort of each state.[25]

[25] Annual percent changes of SCHIP enrollment have increased by 47 percent, 27 percent, 11 percent and 5 percent from 2000 FY to 2003 FY.

In order to estimate the net changes of insurance coverage resulting from the SCHIP expansions rather than other factors during the period (i.e., individuals' intentional disenrollment from private coverage, loss of income, etc.), we contrast observed transitions in coverage for a treatment group with transitions for a control group of children. We wish to compare the reduction in the share of children with private coverage at the last interview to the increase in the share of the children with SCHIP coverage due to the expanded eligibility at the last interview. We use multivariate regression models to estimates the determinants of three transitions. This difference-in-differences approach controls for other factors that affect both the control group and treatment group, and measures the extent of crowd-out private coverage in the treatment group relative to the control group.

The three equations consider: (1) the probability of having SCHIP coverage at the last interview for children with private coverage at the first interview[26]; (2) the probability of having SCHIP coverage at the last interview among children with uninsured status at the first interview; (3) overall probability of having SCHIP coverage at the last interview. Note that our estimation procedure does not impose the restriction that the probabilities sum to one.

We estimate linear probability models of the probability that a child with private coverage at the first interview had private, Medicaid, SCHIP and no insurance at the last interview, and similar models for children with no coverage at the first interview. Then, to estimate the extent of substitution of SCHIP for private coverage, we compute the ratio

[26] Our sample includes all population who choose any insurance status among 4 categories of insurance coverage (Private insurance, Medicaid, SCHIP, or Uninsurance) at the last interview. As mentioned earlier, SCHIP (or Medicaid) includes those who report both private coverage and SCHIP (or Medicaid).

of coefficients (coefficients of the dummy variable indicating whether the child is a member of the treatment group or not) from these models.

Estimation strategy

We use linear probability models as in Blumberg, Dubay and Norton (2000) for estimation. We estimate three sets of linear probability models for the extent of crowd-out. In the first set, we restrict the sample to children with private health insurance at the first interview. Then we estimate four separate equations through the linear probability model. We estimate: the probability of choosing private health insurance at last interview; the probability of movement into SCHIP at last interview; the probability of movement into Uninsured status at last interview of the panel; the probability of movement into Medicaid at last interview. The second set is restricted to the sample to children with uninsured status at the first interview of the survey and the same four equations are estimated. For the third set, we restrict the sample to children with private health insurance or uninsured status at the first interview of the survey. Again, we estimate four transition equations. With the estimates from the third set, we can compute the overall measure of crowd-out for children moving into the SCHIP coverage from either private insurance or uninsured status.

The general structure of the models is:

$$\Pr(coverage_{i2} \mid coverage_{i1}) = \beta_0 + \beta_1 treatment_i + \beta X + STATE_i + \varepsilon \qquad (3.1)$$

Where $coverage_{i2}$ is observation i's insurance coverage at the last interview of the survey (private coverage, SCHIP coverage, medicaid, or uninsured status); $coverage_{i1}$ is observation i's insurance coverage at the first interview (private coverage, uninsured status, or both). $treatment_i$ variable is a dummy indicating whether observation i is member of the treatment group or not; X is a vector of explanatory variables depicting the characteristics of observation i's family and demography based on information collected at the first interview of the survey, and also includes a dummy variable indicating the state's different SCHIP implement options (Separated, Combined SCHIP and Medicaid expansion). $STATE_i$ is a vector of dummy variables indicating the state in which observation i's household lives.

In order to obtain consistent estimates, the treatment variable must be, at a minimum, uncorrelated with the equations' error terms. The error terms of each four linear probability model is assumed uncorrelated each other for separate estimation.

In order to calculate the extent of expansion-related crowd-out of SCHIP for the children with private coverage at the first interview, we divide the coefficient of treatment in the probability equation of having private coverage at both the first and last interviews of survey by the coefficient on treatment in the probability equation of having private coverage at first interview, but SCHIP benefits at last interview. Similarly, we can calculate the extent of expansion-related crowd-out of SCHIP for the children with uninsured status at the first interview, we divide the coefficient of treatment in the probability equation of having uninsured status at the first interview, but private coverage at the last interviews of survey by the coefficient on treatment in the probability equation of having uninsured status at first interview, but SCHIP benefits at last interview.

Results

Tables 10 through 12 display summary statistics of variables used in regressions for treatment- and control- group in three types of coverage at the first interview of the panel. Each insurance variable is an indicator for a child's health insurance status at the last interview of the 2001 SIPP panel given their health insurance status (private or uninsured) at the first interview of the panel.

Table 10 provides statistics of variables used in regressions for children with private coverage in first interview. 8.25 percent of the sample was in the treatment group. Table 11 presents statistics of variables used in regressions for children with uninsured status in first interview. 11.26 percent of the observation was included in the treatment group. Table 12 shows presents statistics of variables used in regressions for children with private coverage or uninsured status in first interview. 8.74 percent of the observation was included in the treatment group. In the group of children with private health insurance at the first interview, the control group is likely to have more earners in their family and two parents.

In the group of children with private health insurance at the first interview, 82 percent of the target group and 89 percent of the control group had private coverage at the last interview. In the group of children with uninsured status at the first interview, 20 percent of the target group and 33 percent of the control group also had private coverage at the last interview. While the proportion of SCHIP enrollment for treatment group of children with private health insurance at the first interview is 5 percent, the control group, who may have been less influenced to enroll in SCHIP due to the expansion, have

changed health insurance coverage from private coverage to the SCHIP by 2 percent at the last interview. In Table 11, the treatment individuals with uninsured at the first had chosen the SCHIP by 15 percent, while the proportion of SCHIIP enrollment for control group is 7 percent. The 50 percent of the target group children starting in uninsured had uninsured status at the last interview while 35 percent of control group was uninsured at the last period.

Table 13 show the results of linear probability model for children with private health insurance at the first interview. The coefficient (-0.0063) of being member of treatment group is negatively associated with having private insurance in the last interviews of the panel. From the this result, we conclude that there is a difference in probability of -6.3 percentage points between the treatment- and control-group, and some eligible children for SCHIP may have displace the private coverage with SCHIP as a simple result of the expansions. The coefficient (0.0245) of being member of treatment group is positively associated with having SCHIP coverage in the last interviews of the panel and statistically significant at the 0.05 level.

TABLE 10. SUMMARY STATISTICS OF VARIABLES USED IN REGRESSIONS FOR CHILDREN WITH PRIVATE IN FIRST INTERVIEW BASED ON COVERAGE DURING THE FINAL WAVE
(NO CHANGES IN FAMILY INCOME DURING SURVEY)

Variables	Treatment Group		Control Group	
Insurance Variables				
Private variable	0.8157	(0.3877)	0.8871	(0.3164)
SCHIP	0.0502	(0.2184)	0.0153	(0.1229)
Medicaid	0.0394	(0.1946)	0.0306	(0.1722)
Uninsured	0.0946	(0.2926)	0.0669	(0.2499)
Demographic Variables				
Male	0.5491	(0.4975)	0.5107	(0.4999)
White	0.8165	(0.3871)	0.8422	(0.3645)
Birth-year	1991.7	(3.9815)	1992.7	(4.3061)
Age 0	0.0278	(0.1643)	0.0551	(0.2282)
Age 1-4	0.1276	(0.3336)	0.1838	(0.3873)
Age 5-9	0.3346	(0.4718)	0.3285	(0.4697)
Age 10-15	0.5101	(0.4999)	0.4327	(0.4954)
Family Characteristics				
No earners	0		0.0198	(0.1392)
One earners	0.5850	(0.4927)	0.3500	(0.4770)
Two earners	0.3678	(0.4822)	0.5737	(0.4945)
Two parents	0.6791	(0.4668)	0.8572	(0.3499)
Only male head	0.0774	(0.2673)	0.0274	(0.1633)
Age of highest earner in family	37.0711	(7.5590)	38.2743	(7.1235)
Education of highest earner in family (above the high school)	0.4528	(0.4978)	0.7177	(0.4501)
Income Relative to Poverty at the first interview	1.7078	(0.4832)	3.9850	(3.5053)
SCHIP implement Options				
Separate SCHIP	0.3269	(0.4691)	0.2269	(0.4188)
Combined SCHIP	0.4735	(0.4993)	0.5888	(0.4920)
Medicaid Expansion	0.1996	(0.3997)	0.1843	(0.3877)
Weighted Number of Observation	2,540,951		28,251,463	

Note: Standard deviations are parentheses. All figures in table present statistics of variables in 2003 final interview and are weighted by personal weight variable provided from SIPP 2001 panel. These variables are used in our estimation, so individuals who have any changes in family income during survey are excluded in this table and estimation. Source: the SIPP 2001 Panel

TABLE 11. SUMMARY STATISTICS FOR VARIABLES USED IN REGRESSIONS FOR CHILDREN WITH UNINSURED STATUS IN FIRST INTERVIEW BASED ON COVERAGE DURING THE FINAL WAVE
(NO CHANGES IN FAMILY INCOME DURING SURVEY)

Variables	Treatment Group		Control Group	
Insurance Variables				
Private variable	0.2021	(0.4016)	0.3304	(0.4704)
SCHIP	0.1459	(0.3530)	0.0716	(0.2578)
Medicaid	0.1565	(0.3634)	0.2463	(0.4309)
Uninsured	0.4954	(0.5000)	0.3517	(0.4775)
Demographic Variables				
Male	0.5173	(0.5000)	0.5313	(0.4990)
White	0.7622	(0.4257)	0.7507	(0.4326)
Birth-year	1992.0	(3.8919)	1992.8	(4.2861)
Age 0	0.0350	(0.1837)	0.0501	(0.2181)
Age 1-4	0.1310	(0.3374)	0.2094	(0.4069)
Age 5-9	0.3514	(0.4774)	0.3262	(0.4688)
Age 10-15	0.4826	(0.5000)	0.4144	(0.4926)
Family Characteristics				
No earners	0		0.1156	(0.3197)
One earners	0.4788	(0.4995)	0.5161	(0.4997)
Two earners	0.4336	(0.4956)	0.2795	(0.4487)
Two parents	0.6176	(0.4860)	0.6372	(0.4808)
Only male head	0.1561	(0.3630)	0.0690	(0.2535)
Age of highest earner in family	37.6791	(8.5001)	36.8443	(9.7056)
Education of highest earner in family (above the high school)	0.2274	(0.4192)	0.3598	(0.4800)
Income Relative to Poverty at the first interview	1.1377	(0.3132)	1.7182	(2.5332)
SCHIP implement Options				
Separate SCHIP	0.2092	(0.4068)	0.1997	(0.3998)
Combined SCHIP	0.7348	(0.4414)	0.6580	(0.4744)
Medicaid Expansion	0.0559	(0.2298)	0.1423	(0.3493)
Weighted Number of Observation	675,871		5,326,859	

Note: Standard deviations are parentheses. All figures in table present statistics of variables in 2003 final interview and are weighted by personal weight variable provided from SIPP 2001 panel. These variables are used in our estimation, so individuals who have any changes in family income during survey are excluded in this table and estimation. Source: the SIPP 2001 Panel

TABLE 12. SUMMARY STATISTICS FOR VARIABLES USED IN REGRESSIONS FOR CHILDREN WITH PRIVATE OR UNINSURED STATUS IN FIRST INTERVIEW BASED ON COVERAGE DURING THE FINAL WAVE (NO CHANGES IN FAMILY INCOME DURING SURVEY)

Variables	Treatment Group		Control Group	
Insurance Variables				
Private variable	0.6868	(0.4638)	0.7988	(0.4009)
SCHIP	0.0703	(0.2557)	0.0243	(0.1539)
Medicaid	0.0640	(0.2448)	0.0648	(0.2462)
Uninsured	0.1788	(0.3832)	0.1121	(0.3155)
Demographic Variables				
Male	0.5425	(0.4982)	0.5139	(0.4998)
White	0.8051	(0.3961)	0.8277	(0.3776)
Birth-year	1991.8	(3.9643)	1992.7	(4.3034)
Age 0	0.0293	(0.1686)	0.0543	(0.2266)
Age 1-4	0.1283	(0.3344)	0.1878	(0.3906)
Age 5-9	0.3381	(0.4731)	0.2881	(0.4695)
Age 10-15	0.5043	(0.5000)	0.4298	(0.4950)
Family Characteristics				
No earners	0		0.0350	(0.1837)
One earners	0.5627	(0.4961)	0.3763	(0.4845)
Two earners	0.3817	(0.4858)	0.5270	(0.4993)
Two parents	0.6662	(0.4716)	0.8223	(0.3823)
Only male head	0.0940	(0.2918)	0.0340	(0.1813)
Age of highest earner in family	37.1989	(7.7703)	38.0471	(7.6099)
Education of highest earner in family (above the high school)	0.4054	(0.4910)	0.6609	(0.4734)
Income Relative to Poverty at the first interview	1.6721	(0.4581)	3.6253	(3.4701)
SCHIP implement Options				
Separate SCHIP	0.3022	(0.4592)	0.2226	(0.4160)
Combined SCHIP	0.5284	(0.4992)	0.5998	(0.4899)
Medicaid Expansion	0.1694	(0.3751)	0.1776	(0.3822)
Weighted Number of Observation	3,216,822		33,578,322	

Note: Standard deviations are parentheses. All figures in table present statistics of variables in 2003 final interview and are weighted by personal weight variable provided from SIPP 2001 panel. These variables are used in our estimation, so individuals who have any changes in family income during survey are excluded in this table and estimation. Source: the SIPP 2001 Panel

TABLE 13. RESULTS OF PROBABILITY MODEL FOR CHILDREN WITH PRIVATE HEALTH INSURANCE AT THE FIRST INTERVIEW

	Movement into Private Insurance	Movement into SCHIP	Movement into Medicaid	Movement into Uninsured
Member of Treatment Group	-0.0063 (0.0178)	0.0245** (0.0096)	-0.0118 (0.0092)	-0.0064 (0.0133)
Age of Highest earner in family	0.0018 (0.0007)	-0.0005 (0.0004)	0.0001 (0.0004)	-0.0014** (0.0006)
College Education of Highest earner	0.0791*** (0.0095)	-0.0074* (0.0042)	-0.0315*** (0.0054)	-0.0064*** (0.0075)
No earner	-0.1118*** (0.0419)	-1.0173 (0.0151)	0.1203*** (0.0313)	0.0089 (0.0327)
One earner	0.0353* (0.0190)	-0.0074 (0.0087)	0.0186** (0.0094)	-0.0465*** (0.0158)
Two earners	0.0331* (0.0177)	-0.0146* (0.0089)	0.0059 (0.0081)	-0.0243 (0.0149)
White	0.0692*** (0.0151)	-0.0192** (0.0075)	-0.0417*** (0.0093)	-0.0083 (0.0116)
Male	-0.0034 (0.0073)	0.0011 (0.0032)	-0.0002 (0.0040)	-0.0043 (0.0058)
Two parents	0.1356*** (0.0164)	-0.0155** (0.0074)	-0.0350*** (0.0101)	-0.0852*** (0.0131)
Only male head	0.0524* (0.0295)	-0.0145 (0.0121)	-0.0157 (0.0175)	-0.0222 (0.0236)
Income Relative to Poverty at the first interview	0.0060*** (0.0010)	-0.0011*** (0.0003)	-0.0030*** (0.0005)	-0.0019** (0.0008)
Combined SCHIP	-0.1823* (0.1001)	0.0621 (0.0673)	0.0821 (0.0721)	0.0381** (0.0205)
Medicaid Expansion	-0.0454 (0.0984)	0.0400 (0.0668)	0.0430 (0.0715)	-0.0376*** (0.0146)
Constant	-0.5419*** (0.0809)	0.0675*** (0.0176)	0.0795*** (0.0244)	0.3110*** (0.0817)
R2	0.0863	0.0300	0.0682	0.0404
Number of Observation	7,349	7,349	7,349	7,349

Note: *** Significant at the 0.01 level; ** Significant at the 0.05 level; * Significant at the 0.10 level. Note: Robust standard errors are parentheses and calculated to solve potential heteroskatasticity in the error terms of linear probability models. Age variables and STATE variables are included in our estimation.

Table 14 shows the results of linear probability model for children with uninsured status at the first interview. The coefficient (-0.0712) of being member of treatment group is negatively associated with having private insurance in the last interviews of the panel and statistically significant at the 0.10 level. The coefficient (0.0744) of being member of treatment group is positively associated with having SCHIP coverage in the last interviews of the panel and statistically significant at the 0.05 level.

Table 15 provides the results of linear probability model for children with private health insurance or uninsured status at the first interview. Being member of treatment group is negatively associated (-0.0176) with having private insurance in the last interviews of the panel, but statistically insignificant. The coefficient (0.0333) of being member of treatment group is positively associated with having SCHIP coverage in the last interviews of the panel and statistically significant at the 0.01 level.

We conclude from the results that there is some displacement of private coverage for children who had private coverage or uninsured status at the first interview, since the negative coefficient of being a member of treatment group in the probability model predicting whether children would have private coverage in the first and last interview of the panel provides that some children with private coverage at the first interview may have displaced their private coverage. However, we cannot say that all of these displacement of private coverage during the period of survey are attributable to crowd-out, since some children who displace the private coverage with SCHIP would have moved into uninsured status due to the other factors which occurred during the same period of expansions, rather than SCHIP coverage expansions. So, in order to calculate the extent of displacement of private coverage due to the extensions, we divide the

negative coefficient of being member of treatment group with private health insurance at both first and last interview by the positive probability that a child would have private coverage in the first period but SCHIP coverage in the last period. From the calculating from the results for regression, the 25.7 percent of transitions from private coverage into SCHIP coverage in group of children with private coverage at the first was made by children who would have had private coverage in the absence of the expansions.

However, there is no evidence that those who had an uninsured status in the treatment group at the first stage transitioned to private coverage (or SCHIP) in greater proportions than children in the control group to do so. The result from the probability model for children who had the uninsured status at the first interview provides there is lower probability that a child who started from uninsured status at the first interview had private coverage at the last interview, while having higher probability of covering by SCHIP program.

In the group of children who have either private coverage or uninsured status at the first interview, the 52.9 percent of transitions from private coverage into SCHIP coverage made by children who would have had private coverage or uninsured status in the absence of the expansions. From these estimates we conclude that the SCHIP expansions have overall displacement effect of 52.9 percent for private coverage for those children who had private coverage or were uninsured from the first interview in 2001.

TABLE 14. RESULTS OF PROBABILITY MODEL FOR CHILDREN WITH UNINSURED STATUS AT THE FIRST INTERVIEW

	Movement into Private Insurance	Movement into SCHIP	Movement into Medicaid	Movement into Uninsured
Member of Treatment Group	-0.0712*	0.0744**	-0.0750**	0.1718
	(0.0395)	(0.0312)	(0.0347)	(0.0442)
Age of Highest earner in family	-0.0013	0.0009	-0.0015	0.0020
	(0.0012)	(0.0009)	(0.0013)	(0.0014)
College Education of Highest earner	0.1858***	0.0002	-0.1311***	-0.0548**
	(0.0283)	(0.0159)	(0.0230)	(0.0277)
No earner	0.0206	-0.0136	0.1472***	-0.1542***
	(0.0563)	(0.0352)	(0.0539)	(0.0588)
One earner	-0.0226	-0.0011	0.0937**	-0.0701
	(0.0432)	(0.0300)	(0.0387)	(0.0464)
Two earners	0.0296	-0.0262	-0.0369	0.0335
	(0.0463)	(0.0287)	(0.0376)	(0.0481)
White	0.1056***	-0.0162	-0.0450	-0.0444
	(0.0326)	(0.0233)	(0.0338)	(0.0360)
Male	0.0310	0.0060	-0.0344	-0.0026
	(0.0229)	(0.0146)	(0.0222)	(0.0248)
Two parents	0.0313	-0.0046	-0.0674**	0.0407
	(0.0297)	(0.0200)	(0.0304)	(0.0321)
Only male head	-0.0518	-0.0156	-0.1645***	0.2319***
	(0.0436)	(0.0302)	(0.0464)	(0.0531)
Income Relative to Poverty at the first interview	0.0325***	-0.0070***	-0.0090**	-0.0164***
	(0.0057)	(0.0024)	(0.0037)	(0.0057)
Combined SCHIP	0.5009	0.0417	-0.8347**	0.2921***
	(0.3719)	(0.0559)	(0.3725)	(0.1030)
Medicaid Expansion	0.7228***	-0.0337	-0.5981**	-0.0910
	(0.1948)	(0.0491)	(0.2335)	(0.0898)
Constant	-0.0506	0.0189	0.9917***	0.0400
	(0.1965)	(0.0533)	(0.2353)	(0.0945)
R2	0.1810	0.0665	0.1321	0.1127
Number of Observation	1,448	1,448	1,448	1,448

Note: *** Significant at the 0.01 level; ** Significant at the 0.05 level; * Significant at the 0.10 level. Note: Robust standard errors are parentheses and calculated to solve potential heteroskatasticity in the error terms of linear probability models. Age variables and STATE variables are included in our estimation.

TABLE 15. RESULTS OF PROBABILITY MODEL FOR CHILDREN WITH PRIVATE HEALTH INSURANCE OR UNINSURED STATUS AT THE FIRST INTERVIEW

	Movement into Private Insurance	Movement into SCHIP	Movement into Medicaid	Movement into Uninsured
Member of Treatment Group	-0.0176	0.0333***	-0.0309***	0.0152
	(0.0160)	(0.0099)	(0.0101)	(0.0137)
Uninsured at the first interview	-0.4618***	0.0476***	0.1594***	0.2547***
	(0.0141)	(0.0077)	(0.0114)	(0.0137)
Age of Highest earner in family	0.0009	-0.0001	-0.0002	-0.0006
	(0.0006)	(0.0004)	(0.0005)	(0.0006)
College Education of Highest earner	0.1050***	-0.0061	-0.0502***	-0.0488***
	(0.0091)	(0.0044)	(0.0060)	(0.0078)
No earner	-0.0567*	-0.0150	0.1445***	-0.0728***
	(0.0311)	(0.0164)	(0.0274)	(0.0284)
One earner	0.0134	-0.0063	0.0390***	-0.0461***
	(0.0177)	(0.0097)	(0.0116)	(0.0164)
Two earners	0.0255	-0.0158*	0.0062	-0.0159
	(0.0169)	(0.0089)	(0.0103)	(0.0156)
White	0.0721***	-0.0202***	-0.0449***	-0.0070
	(0.0137)	(0.0077)	(0.0102)	(0.0121)
Male	0.0092	0.0027	-0.0086*	-0.0033
	(0.0072)	(0.0035)	(0.0050)	(0.0064)
Two parents	0.0993***	-0.0128*	-0.0417***	-0.0449***
	(0.0143)	(0.0075)	(0.0109)	(0.0127)
Only male head	0.0148	-0.0159	-0.0615***	0.0626***
	(0.0245)	(0.0124)	(0.0180)	(0.0234)
Income Relative to Poverty at the first interview	0.0080***	-0.0016***	-0.0034***	-0.0030***
	(0.0011)	(0.0003)	(0.0006)	(0.0009)
Combined SCHIP	-0.1898*	0.0686	0.0297	0.0915***
	(0.1133)	(0.0687)	(0.0890)	(0.0342)
Medicaid Expansion	-0.0450	0.0381	0.0450	-0.0381*
	(0.1001)	(0.0681)	(0.0719)	(0.0197)
Constant	0.7680***	0.0102	0.0706	0.1512***
	(0.11823)	(0.0713)	(0.0808)	(0.0463)
R2	0.3220	0.0422	0.1561	0.1406
Number of Observation	8,797	8,797	8,797	8,797

Note: *** Significant at the 0.01 level; ** Significant at the 0.05 level; * Significant at the 0.10 level. Note: Robust standard errors are parentheses and calculated to solve potential heteroskatasticity in the error terms of linear probability models. Age variables and STATE variables are included in our estimation.

Chapter IV

The Effect of State Children's Health Insurance on Single Mother's Labor Supply

Introduction

In this chapter, I provide empirical evidence on the impact of SCHIP on single mothers' working decisions using recent data from the CPS (Current Population Survey). Following the Medicaid program expansions during the mid-1980s, there have been extensive analyses on how the availability of Medicaid health insurance affects the work decision of single women with children. These studies suggest that the Medicaid expansion has either no effect or a small effect on the work decision of low-income single mothers (Blank 1989; Decker 1993; Ham and Shore-Sheppard 2003; Meyer and Rosenbaum 2000; Moffitt and Wolfe 1992; Montgomery and Navin 2000; Winkler 1991; Yelowitz 1995).

There is relatively little evidence, however, on the effect of SCHIP on low-income female-headed households in the United States. One study – Wolfe et al. (2005) - examines the effect of Wisconsin's SCHIP on the labor market outcomes (employment decisions and labor earnings) of low-income single mothers, and finds that introduction of SCHIP, which started operation in July 1999, affects single mothers' labor supply. Specifically, they found that labor earnings increased by 3 to 7 percentage points with the

introduction of SCHIP (BadgerCare). However, this increase was small in absolute dollar value-from $72 to $153 per quarter.

The empirical work carried out here first investigates the hypothesis that labor force participation among female heads of households will increase with the increasing income limits of SCHIP. We expect the availability of SCHIP to influence labor force participation of women with no work history because of the new opportunities to increase income while retaining health insurance for children. The increase in income is available only when the women start to work, so that labor force participation increases.

Second, single mothers with low income are likely to work more hours with increased SCHIP availability. Because low-income working mothers whose children are eligible for Medicaid need not fear loss of health insurance because of increased work or higher income, they have incentives to increase their hours worked and thus their income with the introduction of SCHIP. This new incentive to seek higher income could lead to increases in hours worked. However, if a woman works and has no coverage for her kids and has an income just above the eligibility level for SCHIP, she could reduce her hours and qualify the kids for public coverage. This would apply to women who earn just above the cut off level for the respective program. We will theoretically mention this in section 4. It is not clear a-priori which effect will dominate.

Using recent CPS (Current Population Survey) data during 1999-2005, we estimate whether the probability of labor force participation for a single mother is affected by the SCHIP expansions. In order to examine the extent to which the SCHIP expansions affected individuals' work behavior, we estimate binary choice models of labor force participation as well as a model for working hours. The empirical work

requires a measure of the change in eligibility requirements; we compute a measure suggested by Yelowitz (1995), which is described below.

Literature review

There is a very large literature written on the incentive effects of Medicaid expansions. The impact of Medicaid expansion on female labor supply is controversial.

Winkler (1991) and Moffitt and Wolfe (1992) conclude that Medicaid expansions lead to a reduction in female labor force participation. They found a negative impact of Medicaid expansion on female labor force participation. Yelowitz (1995) provides evidence that the effect of the Medicaid expansion on single mothers' labor supply is positive. In contrast, Meyer and Rosenbaum (2000), Blank (1989), Montgomery and Navin (2000), Decker (1993), Ham and Shore-Sheppard (2003) all find that Medicaid expansion has no impact on the work decision of low income single mothers. These differences may in part reflect differences in measuring the value of Medicaid benefits in each study. Because Medicaid is an in-kind benefit, the proper valuation for a family is problematic. In general, there are three approaches in the valuation of Medicaid: government cost approach whereby government expenditures per recipient or per eligible individual are used, the cash-equivalent value approach, and the funds released approach where by in-kind transfers are valued by the funds released for the purchase of other good.[27]

[27] The government-cost approach values medical care transfers at the cost of providing them, which includes administrative costs. The cash-equivalent approach (utility-value approach) deems that

Winkler (1991) used state level Medicaid expenditures per recipient (a per-capita spending measure) in her study. Because she used cross-sectional data in her study, she could not control for the state-specific and time-specific effects which could be correlated with labor market behavior. Also, her measure assumed that the value of Medicaid-provided health service does not vary across individuals, and is not dependant on the health status of family members. Montgomery and Navin (2000) include state level per-capita Medicaid spending measure in their study. They find small effects of Medicaid expenditures on labor force participation, although the effects disappear once state fixed effects are included as regressors.

Moffitt and Wolfe (1992) used a family-specific heterogeneity index to construct a measure of potential utilization of Medicaid health benefits. For example, the family in poor health places a higher value on Medicaid health service than those with good health. This approach is a modified form of the government cost approach (government expenditures per recipient), by incorporating individual and family heterogeneity. Constructing a family-specific proxy for the value of Medicaid that will capture the effects of family members with poor health is problematic. First, those in poor health usually have lower productivity than healthy workers. Thus, lower wages lead worker with poor health to reduce their labor supply. Second, the indifference curve between work and leisure of those in poor health is likely to be steeper than one of those in good health. In other words, a marginal disutility of work of those in poor health is greater that

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in-kind transfers be valued in a form commensurate to cash income. In other words, what amount of cash transfer would leave the recipient equally well-off as a given amount of medical care transfer? This approach is the well-known Hicksian equivalent variation. The funds-released approach values medical care transfers at the amount of funds released to be spent on other goods. For detail, see Smeeding and Moon Smeeding, Thomas and Marilyn Moon. 1980. Valuing government expenditures: The case of medical care transfers and poverty. *Review of Income and Wealth* 26: 305-324.

one in good health. Thus, the coefficient on family-specific proxy could be capturing more than the direct effect of Medicaid.

Yelowitz (1995) notes that valuing an in-kind health benefit such as Medicaid or SCHIP is "*a daunting task*," because it is so difficult for the proxy to capture the unobservable individual-specific features (risk aversion, health status, etc.) that drive a recipient's valuation of an in-kind benefit. Yelowitz (1995) examines the effect of changes in Medicaid eligibility income limits for families with young children on single female labor supply and welfare system participation. He has parameterized the difference between AFDC and Medicaid eligibility to measure how much the Medicaid income limit is increased from the reforms over its previous AFDC level (he denotes this as *GAIN%*). Using data from the 1989-1992 CPS, he finds evidence that expansions in Medicaid eligibility led to a small but statistically significant increase in the labor force participation rate of single mothers.

New contribution

There have been few studies to date on the relationship between SCHIP coverage and labor supply. Thus the primary contribution of this chapter is to quantify the impact of the expansion of income eligibility limits on single mothers' labor supply (labor force participation and hours worked). These results will provide new national evidence on the SCHIP expansion effects. We provide specific evidence that the SCHIP expansions have

different impacts on women depending on their marital status (never married, separated and divorced single mothers).

Theoretical effects of SCHIP on labor supply of single mother

This section illustrates the theoretical framework that explains how SCHIP expansions should affect the single mother's labor supply according to revealed preference theory. Assume that utility function is, $U = u(L, X)$, where L is leisure and X is consumption of other goods. Further, assume that a single mother faces an after-tax wage rate of w_{After} for her work effort and denote the price of other goods by P_X. Figures 7 and 8 illustrate the predicted effects on single mother's labor supply decision that can be expected to occur based on the incremental expansions of SCHIP income eligibility. Figure 7 illustrates the single mother's initial budget constraint. We assume she has an endowment of leisure hours, T, and receives non-labor income, M, which may consist of her family's earnings or asset income. We also assume the value of Medicaid and SCHIP coverages (V) is not changed over time and is constant across the consumers. To simplify the illustration, assume that her children are not covered by privately purchased or employer provided health insurance, and labor supply and job choice decisions of other members in her family are exogenous. We also assume in figure 7 that the SCHIP and Medicaid provide health insurance coverage only for her children. Medicaid is means-tested at an income limit of $I_{medicaid}$, and SCHIP is at an income limit of I_{SCHIP}. Medicaid is not taxed for total income less than $I_{medicaid}$, but is taxed away entirely for

income greater than $I_{medicaid}$. In figure 7, this loss of Medicaid coverage occurs when the single mother works at least $\frac{I_{medicaid} - M}{w_{after}}$ hours in the labor market.

Figure 8 shows the effect of SCHIP income eligibility expansion, based on increasing the income limit of public health insurance from $I_{medicaid}$ to I_{SCHIP}, while assuming the value of pre-existed Medicaid and the new SCHIP coverage are the same. In order to predict the effect on labor force participation and working hours of single mother, we need to consider three portions of the her budget constraint. First, consider those who initially work an amount of hours in the range $\left(\frac{I_{SCHIP} - M}{w_{after}}, T\right]$, the second portion applies to those who initially working in the range $\left(\frac{I_{medicaid} - M}{w_{after}}, \frac{I_{SCHIP} - M}{w_{after}}\right]$, and the final portion applies to those initially working an amount of hours in the range $\left[0, \frac{I_{medicaid} - M}{w_{after}}\right]$. Consider a single mother initially worked a number of hours greater than $\frac{I_{SCHIP} - M}{w_{after}}$. If a single mother changes her behavior, the only possible choice is to work an amount of hours somewhere in the range $\left(\frac{I_{medicaid} - M}{w_{after}}, \frac{I_{SCHIP} - M}{w_{after}}\right]$. If she is working an amount of hours less than $\frac{I_{medicaid} - M}{w_{after}}$, the possible bundle set on the budget constraint are unchanged relative to the initial budget constraint in figure 7; therefore, by the revealed preference, those who initially not choosing any bundle sets greater than

$\frac{I_{medicaid} - M}{w_{after}}$ would not choose those bundle sets after the income limit increase from $I_{medicaid}$ to I_{SCHIP}. Therefore, we can expect that single mother reduces amount of working hours, but still participates in labor force. Second, for single mother who initially working in the range $\left(\frac{I_{medicaid} - M}{w_{after}}, \frac{I_{SCHIP} - M}{w_{after}} \right]$, income effect of SCHIP expansions drive her to reduce working hours when we assume leisure is normal good. However, she will work greater amount of hour greater than $\frac{I_{medicaid} - M}{w_{after}}$, because these bundle sets is not chosen before SCHIP income eligibility expansions, so they will not be preferred after SCHIP expansions, by revealed preference. We can expect that single mother reduces amount of working hours, but still participates in labor force similar to the first group of single mothers. Finally, for those who initially working in the range $\left[0, \frac{I_{medicaid} - M}{w_{after}} \right]$, the only possible choice for single mother changing her behavior would be to choose an amount of hours that would provide earnings that lie between the Medicaid and SCHIP income limit. In the bundle sets between old and new income cutoffs, single mother will participate in labor market and increase her working hours. If those who initially are not working change their behaviors, then labor force participation will increase.

Based on these effects of three groups of single mothers, we can see that the full effect on working hours is ambiguous because while both the first and second group will reduce their working hours, hours for the last group will increase. We might expect that the aggregate labor force participation will increase, because women in both the first and

second groups will stay in labor force, and the last group will join the labor force, if they change their behavior at all.

Empirical model

We estimate a reduced-form model of two equations, where we consider labor force participation and hours worked of single mothers. The first equation examines the binary choice between working and not working. The equation for hours worked is conditional on labor force participation. Both equations are functions of socio-economic characteristics of the woman and her family, state level variables that measure program differences among states and the variable that measures the change in the income limit of public health insurance. This variable, constructed by Yelowitz (1995), is described below.

Yelowitz's GAIN variable measures the increase in the income limit of public health insurance from the SCHIP expansion over its previous Medicaid level. We express the GAIN variable computed for the mother's youngest child as a percentage of the federal poverty line (FPL). We computed this variable from difference between SCHIP's new income eligibility limit and MEDICAID's income eligibility limit prior to SCHIP expansion.

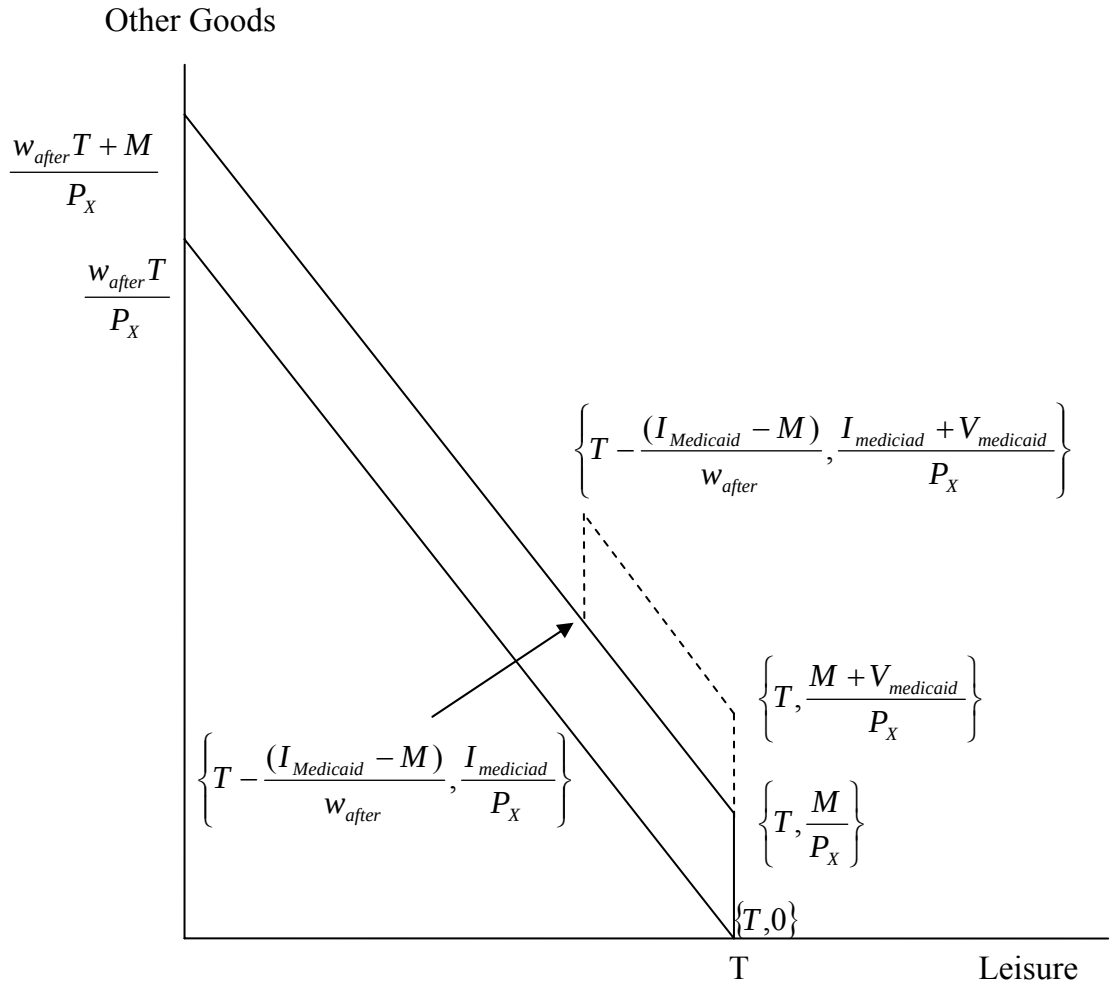

Figure 7. Initial budget constraint for single mother before SCHIP expansions

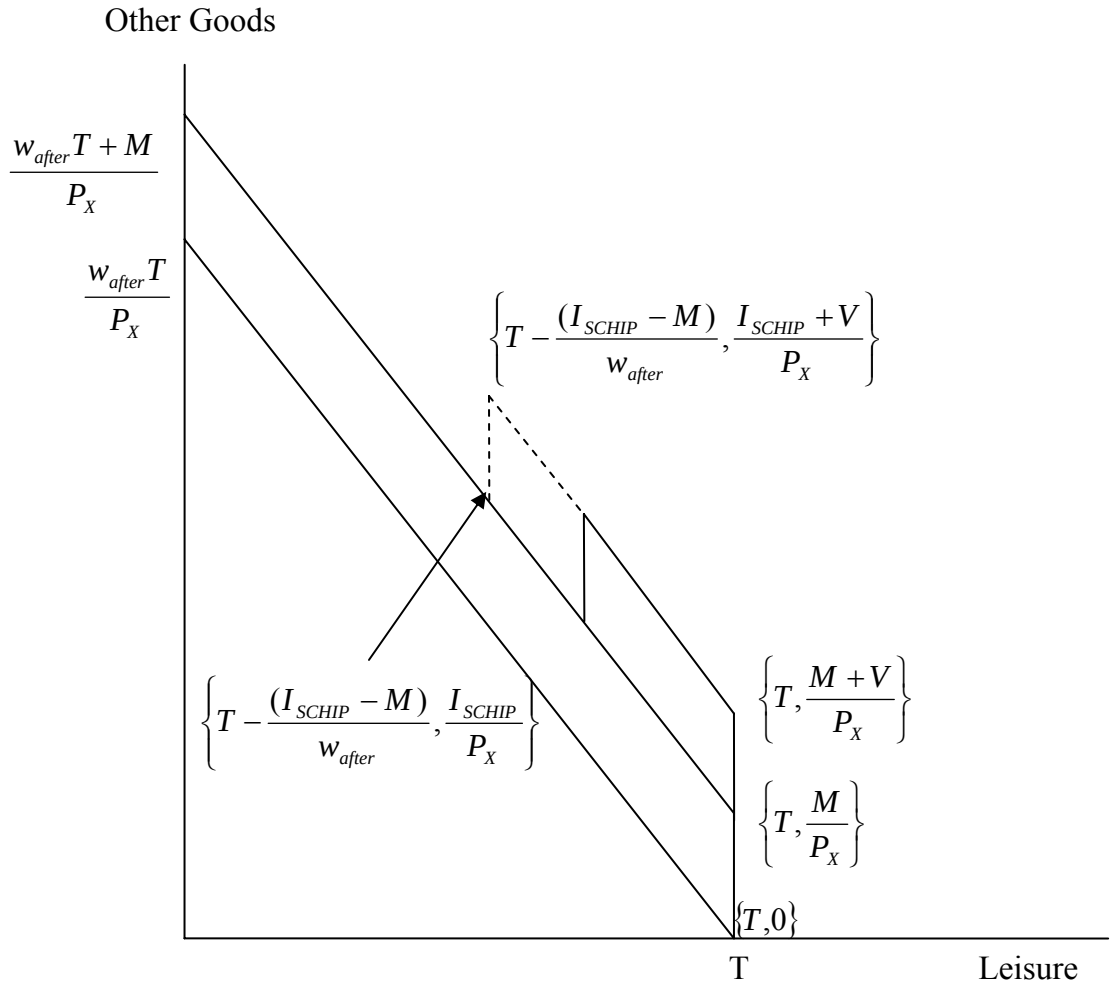

Figure 8. Single mother's budget constraint facing increased income limit after SCHIP expansion. ($I_{SCHIP} > I_{medicaid}$)

The income limits of both SCHIP and Medicaid are also expressed as a percentage of the FPL. This is formulated as following:

$$\begin{aligned} &Yelowitz's\ GAIN\% = \\ &\quad Max(SCHIP\ Income\ Eligibility\ Limit - Medicaid\ Income\ Eligibility\ Limit,\ 0) \end{aligned} \tag{4.1}$$

Labor force participation equation

Consider a latent variable E^*_{ist} which determines participation in the labor market. The labor force participation decision is given by the following expression:

$$E^*_{igst} = \beta_0 + \beta_1 GAIN_{igst} + \beta_2 X_i + \beta_3 TIME_t + \beta_4 STATE_s + \beta_5 KIDAGE_g + \varepsilon_{igst} \tag{4.2}$$

$$\begin{aligned} E_{igst} &= 1 \text{ if } E^*_{igst} \geq 0 \\ &\quad 0 \text{ if } E^*_{igst} < 0 \end{aligned}$$

where i indexes individuals, g indexes the youngest child's age, s indexes states, and t indexes time period, and E_{igst} denotes the binary dependent variable that indicates labor force participation. The $GAIN_{igst}$ variable is the explanatory variable of primary interest: we hypothesize that it has a positive coefficient ($\beta_1 > 0$) for single mothers' employment. The vector X_i includes measures such as mother's age and its square, mother's years of education and its square, a race indicator variable, number of children under six, a dummy variable to distinguish marital status (divorced, separated) and

whether the residence is in a central city. Dummy variables for time, state, and youngest child's age are represented by TIME, STATE, and KIDAGE. We assume that error term ε_{igst} is normally distributed with mean zero and unit variance.

The probability of single mother's labor force participation is shown as:

$$\begin{aligned}
&\Pr ob(E_{igst} = 1) = \Pr ob(E^{*}_{igst} > 0) \\
&= \Pr ob(\varepsilon_{igst} > -\beta_0 - \beta_1 GAIN_{isgt} - \beta_2 X_i - \beta_3 TIME_t - \beta_4 STATE_s - \beta_5 KIDAGE_g) \\
&= 1 - \Phi(-\beta_0 - \beta_1 GAIN_{isgt} - \beta_2 X_i - \beta_3 TIME_t - \beta_4 STATE_s - \beta_5 KIDAGE_g)
\end{aligned} \tag{4.3}$$

where $\Phi(\bullet)$ is the cumulative normal density function for ε_{igst} .

Working-hours equation

The reduced-form working-hours equation is given by:

$$\begin{aligned}
WH_{igst} = {} & \beta_0 + \beta_1 GAIN_{igst} + \beta_2 X_i + \beta_3 TIME_t \\
& + \beta_4 STATE_s + \beta_5 KIDAGE_g + \beta_4 L_{igst} + \nu_{igst}
\end{aligned} \tag{4.4}$$

where WH_{igst} is observed annual hours worked.

Estimation of equation (4.4) is complicated because the sample consists of only women who have chosen to participate in the labor force. The sample of working women cannot be considered a random sample from the population; for example, it is likely that

individuals who are observed working are also likely to work longer hours that an average individual drawn from the full population.

This selection issue was first addressed by Heckman (1980), who suggested a two-step model of hours worked to provide consistent estimates of this structural equation. The first step involves estimating a labor force participation equation which can then be used to derive a sample selection correction. The decision to work as given by (4.2), is estimated using probit. Next, a selectivity variable, L, is constructed using the parameter estimates from (4.2) following Heckman (1980). L is subsequently included as an additional regressor in the second step hours equation (4.4), and parameter estimates of the variables in (4.4) are obtained by maximizing a likelihood function with respect to the parameter vector.

We would anticipate that the effect of the SCHIP expansion varies across states and over time, because other economic variables in the environment changed simultaneously with the expansion. For example, macroeconomic conditions that could be uncorrelated with SCHIP expansion could provide single mothers with incentives to participate in the labor market. In order to identify the causal effects of the expansion, we must control for systematic shocks to the labor market conditions of the low-income single mothers. The Difference-in-Differences estimator can be used to control for this identification problem. First, we include state dummies, to capture the state-specific macroeconomic trends (state-specific labor market conditions) which are correlated with the implementation of SCHIP and to control for state variations in SCHIP policy (out-reach effort, anti-crowding-out policy,[28] etc.). Second, we include year effects, to capture

[28] The SCHIP program requires approaches designed to prevent the crowd-out of private insurance. The methods used by states to limit the degree of crowd-out of private insurance are waiting

the effect of the national average trend in employment of low-income single mothers. Third, in order to capture the different responses to eligibility expansion that vary across children's age within low-income single mother families, we use the youngest child's age dummy variable in our estimation. For example, we believe that unobservable economic shocks could have affected labor-market outcomes for low-income single mothers with older children more than mothers with younger children. Finally, interactions between STATE and TIME control unobserved "time-varying-state- specific" factors that could be correlated with single mothers' employment and worked hours decisions. By including these interaction variables of STATE and TIME in our estimation equations, we can obtain the difference-in-differences estimates.[29]

Data and descriptive evidence

The data set, which consists of repeated cross sections, was constructed using the March Current Population Survey (CPS), from the years 1999 to 2005. These years

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periods, which is the requirement that children be without insurance for commonly 3-6 months; monitoring and application questions regarding children's health care; verifying insurance status against databases of private coverage; cost sharing; subsidizing employer-based coverage; and imposing obligations on employers or insurers to limit the occurrence of crowd-out (Lutzky, Amy Westpfahl and Ian Hill. 2001. *Has the jury reached a verdict? States' early experience with crowd-out under SCHIP*. Washington, D.C.: The Urban Institute, 47.) Imposing waiting periods is the most common strategy used by the states for controlling crowd out. Monitoring crowd out and posing application questions about health insurance status are the second-most common strategies employed by states to address crowd-out concerns.

[29] Recent studies (Gruber, Jonathan. 1994. The incidence of mandated maternity benefits. *American Economic Review* LXXXIV: 622-641., Gruber, Jonathan and James Poterba. 1994. Tax incentives and the decision to purchase health insurance: Evidence from the self-employed. *Quarterly Journal of Economics* CIX: 701-733., Yelowitz, Aaron. 1995. The Medicaid notch, labor supply and welfare participation: Evidence from eligibility expansion. *Quarterly Journal of Economics* 110, no. 4: 909-940., and LoSasso, Anthony T. and Thomas C. Buchmueller. 2004. The effect of the state children's health insurance programs on health insurance coverage. *Journal of Health Economics* 23: 1059-1082.take this approach in their studies.

covered the period when the SCHIP expansions occurred. Information on labor force participation and welfare participation refer to the prior calendar year. The single mother's age is restricted to between 18 and 55 years. These women have at least one child under 18 to provide a sample of potentially financially independent women. The final sample consists of 41,714 single mothers. For the purposes of this study, single mothers were defined as those who were divorced, separated, or never married.

We first examine the distribution of income for those who have SCHIP benefits. Expanding income eligibility levels for public health insurance through SCHIP will theoretically tend to lead single mothers to increase their working hours, because there are no more fears about losing health coverage when income cutoffs are exceeded. On the other hand, the SCHIP expansion could lead to single mothers whose earned income exceeds the SCHIP threshold to reduce their working hours in order to qualify for SCHIP. If these expectations are reasonable, single mothers who are now using SCHIP benefits will have the incentive to work up to SCHIP eligible income levels. Thus the distribution of SCHIP families' income level should be capped below the SCHIP eligible income cutoff. Using the CPS data from 1999 to 2005, we investigate the distribution of SCHIP families' income levels relative to each state's eligibility cutoffs. We sort the states by the income eligibility levels (FPL150, 185, 200, 250 and 300) based on Federal Fiscal Year 2001. The poverty ratio of income to low-income level provided by CPS ranges from 1 to 12 (Table 16).

TABLE 16. THE POVERTY RATIO OF INCOME TO LOW-INCOME LEVEL PROVIDED BY CPS

Category	Poverty Ratio
Level 1	under 0.50
Level 2	0.50~0.74
Level 3	0.75~0.99
Level 4	1.00~1.24
Level 5	1.25~1.49
Level 6	1.50~1.74
Level 7	1.75~1.99
Level 8	2.00~2.49
Level 9	2.50~2.99
Level 10	3.00~3.49
Level 11	3.50~3.99
Level 12	4.00~4.49

Figures 9 through 19 illustrate the distribution of the ratio of income to low-income level for SCHIP families. In Figure 10, Figure 18 and 19, we find evidence that the SCHIP families living in states with income cutoffs of FPL 185 and 300, tend to cluster just below their SCHIP eligibility income levels. For other SCHIP families, income distributions appear to be capped below their SCHIP cutoff, rather than clustered just below the thresholds. This descriptive evidence yields some expectation that expanding public health coverage through the SCHIP could result in increases of single mother's working hours and probability of being employed.

Table 17 provides descriptive statistics for all variables used in the estimation. Fully 82 percent of single mothers participated in the labor force, and single mothers worked an average of approximately 1422 hours for each year. Annual hours worked are calculated by usual weekly hours last year multiplied by weeks worked last year. About 20 percent of single mothers in this sample did not complete high school. Table 18 shows that there are observable differences among divorce, separated and never married single mothers. The divorced mothers are older and more likely to participate in labor force than separated or never married mothers. Table 18 also shows that never married mothers are likely to work less than divorced mothers by about 400 hours of work for each year. Due to these differences according to marital status, we include dummy variables for marital status in our estimation. Based on the apparently low work incentives of never married single mothers, we speculate that SCHIP expansion could have larger impacts on never married single mothers' employment and working hours decision.

TABLE 17. SUMMARY STATISTICS

	Mean	Standard Error
Employment Status (1 if usual weekly hours last year>0; 0 otherwise)	0.815	0.388
Annual hours worked (usual weekly hours last year × weeks worked last year)	1421.595	920.855
GAIN Variable	86.233	51.760
Mother's age	34.358	8.861
Youngest child's age	7.585	5.320
Oldest child's age	10.342	5.955
Number own child under age 6	0.521	0.706
Number of persons in family	2.916	1.115
Dummy variable for Education (1 if educational attainment>highschool diploma)	0.805	0.396
Black	0.243	0.428
White	0.703	0.457
Central City	0.311	0.463
Northeast	0.208	0.406
Midwest	0.223	0.416
South	0.321	0.467
West	0.248	0.432
Dummy variable for Marital Status=Divorce	0.406	0.490
Dummy variable for Marital Status=Separated	0.143	0.349
Dummy variable for Marital Status=Never married	0.451	0.498
Total Number of observations	41,714	

TABLE 18. SUMMARY STATISTICS BY MARITAL STATUS.

	Divorced	Separated	Never Married
Employment Status (1 if usual weekly hours last year>0; 0 otherwise)	0.880	0.805	0.759
Annual hours worked (usual weekly hours last year × weeks worked last year)	1654.314	1379.219	1225.617
GAIN Variable	92.580	92.214	78.622
Mother's age	38.924	36.313	29.628
Youngest child's age	9.972	7.944	5.322
Oldest child's age	12.822	11.818	7.641
Number own child under age 6	0.261	0.483	0.766
Number of persons in family	2.890	3.255	2.831
Dummy variable for Education (1 if educational attainment>highschool diploma)	0.898	0.751	0.738
Black	0.120	0.210	0.363
White	0.832	0.737	0.578
Central City	0.223	0.337	0.382
Northeast	0.192	0.226	0.216
Midwest	0.243	0.156	0.223
South	0.303	0.341	0.331
West	0.262	0.275	0.227
Total Number of observations	16,929	5,974	18,811

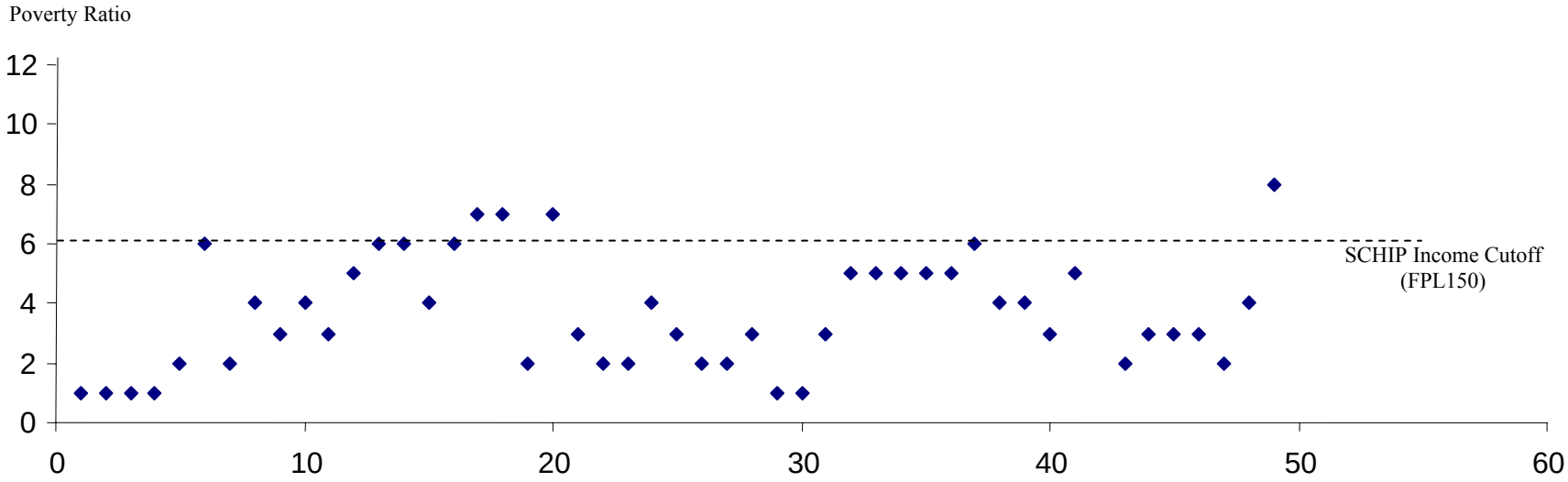

Figure 9. Distribution of ratio of income to low-income level (poverty) for SCHIP families: SCHIP income eligibility cutoff is FPL150 for federal fiscal year 2001 (Idaho, Montana and South Carolina)

Source: Current Population Survey, March Supplement. 1999~2005
Note: Poverty ratio of income to low-income level ranges from 1 to 12: level 1 indicates "under 0.50, level 2 is "0.50~0.74," level 3 is "0.75~0.99," level 4 is "1.00~1.24," level 5 is "1.25~1.49," level 6 is "1.50~1.74," level 7 is "1.75~1.99," level 8 is "2.00~2.49," level 9 is "2.50~2.99," level 10 is "3.00~3.49," level 11 is "3.50~3.99" and level 12 is "4.00~4.49." Total observation used for this figure is 48.
The total number of observation used for these figures is 2099. States with SCHIP cutoffs of FPL150 are Idaho, Montana and South Carolina (number of observation is 48). States with SCHIP cutoffs of FPL185 are Colorado, Illinois, Nebraska, Oklahoma and Wisconsin (number of observation is 187). States with SCHIP cutoffs of FPL200 (number of observation is 1210) are Alabama, Alaska, Arizona, Arkansas and Delaware District of Columbia, Florida, Hawaii, Indiana, Iowa, Kansas, Kentucky Louisiana, Maine, Massachusetts, Michigan, Mississippi, Nevada, North Carolina Ohio, Pennsylvania South Dakota, Texas, Utah, Virginia and West Virginia. States with SCHIP cutoffs of FPL250 are California, New York, Rhode Island and Washington (number of observation is 432). States with SCHIP cutoffs of FPL300 are Connecticut, Maryland, Missouri, New Hampshire and Vermont (number of observation is 222).

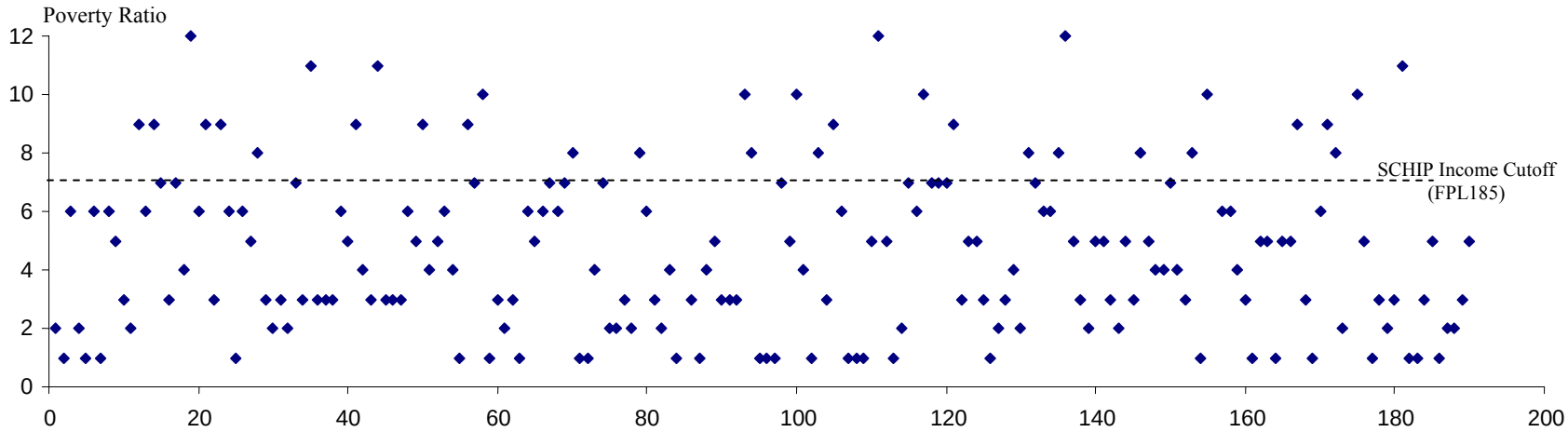

Figure 10. Distribution of ratio of income to low-income level (poverty) for SCHIP families: SCHIP income eligibility cutoff is FPL 185 for federal fiscal year 2001 (Colorado, Illinois, Nebraska, Oklahoma and Wisconsin)

Source: Current Population Survey, March Supplement. 1999~2005
Note: Poverty ratio of income to low-income level ranges from 1 to 12: level 1 indicates "under 0.50, level 2 is "0.50~0.74," level 3 is "0.75~0.99," level 4 is "1.00~1.24," level 5 is "1.25~1.49," level 6 is "1.50~1.74," level 7 is "1.75~1.99," level 8 is "2.00~2.49," level 9 is "2.50~2.99," level 10 is "3.00~3.49," level 11 is "3.50~3.99" and level 12 is "4.00~4.49." Total observation used for this figure is 187.
The total number of observation used for these figures is 2099. States with SCHIP cutoffs of FPL150 are Idaho, Montana and South Carolina (number of observation is 48). States with SCHIP cutoffs of FPL185 are Colorado, Illinois, Nebraska, Oklahoma and Wisconsin (number of observation is 187). States with SCHIP cutoffs of FPL200 (number of observation is 1210) are Alabama, Alaska, Arizona, Arkansas and Delaware District of Columbia, Florida, Hawaii, Indiana, Iowa, Kansas, Kentucky Louisiana, Maine, Massachusetts, Michigan, Mississippi, Nevada, North Carolina Ohio, Pennsylvania South Dakota, Texas, Utah, Virginia and West Virginia. States with SCHIP cutoffs of FPL250 are California, New York, Rhode Island and Washington (number of observation is 432). States with SCHIP cutoffs of FPL300 are Connecticut, Maryland, Missouri, New Hampshire and Vermont (number of observation is 222).

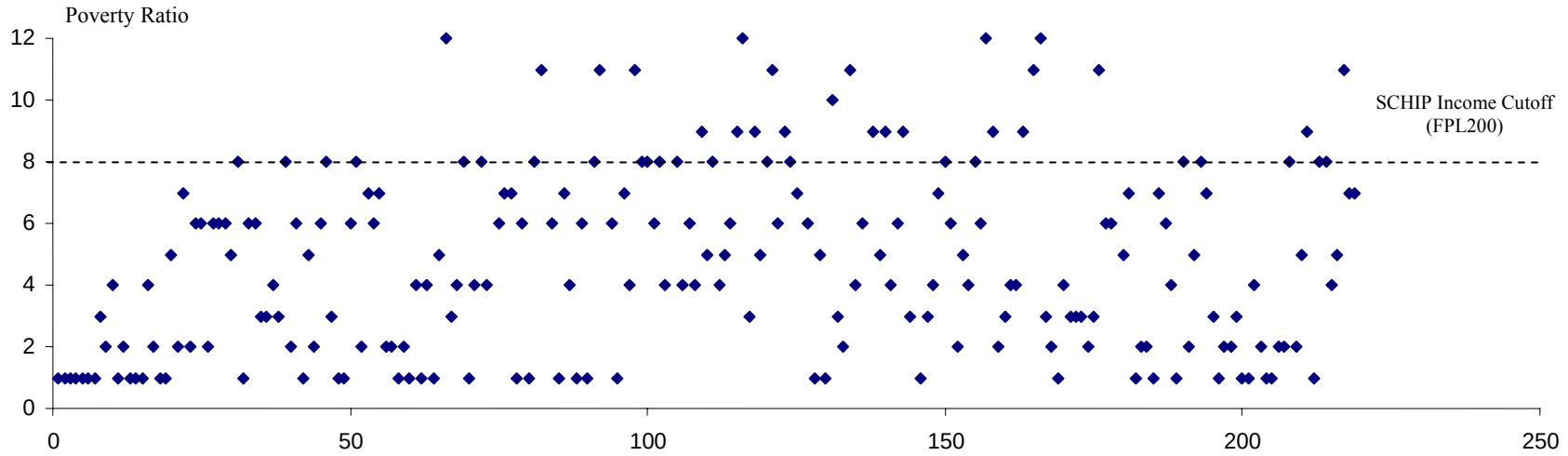

Figure 11. Distribution of ratio of income to low-income level (poverty) for SCHIP families: SCHIP income eligibility cutoff is FPL 200 for federal fiscal year 2001 (Alabama, Alaska, Arizona, Arkansas and Delaware)

Source: Current Population Survey, March Supplement. 1999~2005
Note: Poverty ratio of income to low-income level ranges from 1 to 12: level 1 indicates "under 0.50, level 2 is "0.50~0.74," level 3 is "0.75~0.99," level 4 is "1.00~1.24," level 5 is "1.25~1.49," level 6 is "1.50~1.74," level 7 is "1.75~1.99," level 8 is "2.00~2.49," level 9 is "2.50~2.99," level 10 is "3.00~3.49," level 11 is "3.50~3.99" and level 12 is "4.00~4.49." Total observation used for this figure is 219.
The total number of observation used for these figures is 2099. States with SCHIP cutoffs of FPL150 are Idaho, Montana and South Carolina (number of observation is 48). States with SCHIP cutoffs of FPL185 are Colorado, Illinois, Nebraska, Oklahoma and Wisconsin (number of observation is 187). States with SCHIP cutoffs of FPL200 (number of observation is 1210) are Alabama, Alaska, Arizona, Arkansas and Delaware District of Columbia, Florida, Hawaii, Indiana, Iowa, Kansas, Kentucky Louisiana, Maine, Massachusetts, Michigan, Mississippi, Nevada, North Carolina Ohio, Pennsylvania South Dakota, Texas, Utah, Virginia and West Virginia. States with SCHIP cutoffs of FPL250 are California, New York, Rhode Island and Washington (number of observation is 432). States with SCHIP cutoffs of FPL300 are Connecticut, Maryland, Missouri, New Hampshire and Vermont (number of observation is 222).

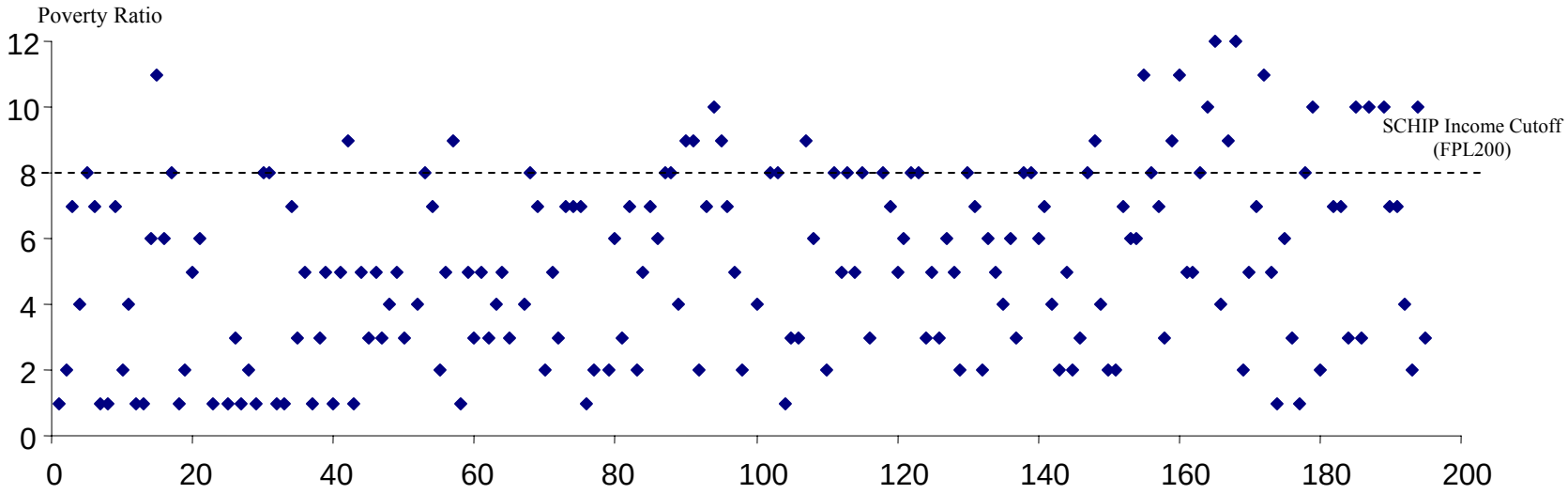

Figure 12. Distribution of ratio of income to low-income level (poverty) for SCHIP families: SCHIP income eligibility cutoff is FPL 200 for federal fiscal year 2001 (District of Columbia, Florida and Hawaii)

Source: Current Population Survey, March Supplement. 1999~2005
Note: Poverty ratio of income to low-income level ranges from 1 to 12: level 1 indicates "under 0.50, level 2 is "0.50~0.74," level 3 is "0.75~0.99," level 4 is "1.00~1.24," level 5 is "1.25~1.49," level 6 is "1.50~1.74," level 7 is "1.75~1.99," level 8 is "2.00~2.49," level 9 is "2.50~2.99," level 10 is "3.00~3.49," level 11 is "3.50~3.99" and level 12 is "4.00~4.49." Total observation used for this figure is 197.
The total number of observation used for these figures is 2099. States with SCHIP cutoffs of FPL150 are Idaho, Montana and South Carolina (number of observation is 48). States with SCHIP cutoffs of FPL185 are Colorado, Illinois, Nebraska, Oklahoma and Wisconsin (number of observation is 187). States with SCHIP cutoffs of FPL200 (number of observation is 1210) are Alabama, Alaska, Arizona, Arkansas and Delaware District of Columbia, Florida, Hawaii, Indiana, Iowa, Kansas, Kentucky Louisiana, Maine, Massachusetts, Michigan, Mississippi, Nevada, North Carolina Ohio, Pennsylvania South Dakota, Texas, Utah, Virginia and West Virginia. States with SCHIP cutoffs of FPL250 are California, New York, Rhode Island and Washington (number of observation is 432). States with SCHIP cutoffs of FPL300 are Connecticut, Maryland, Missouri, New Hampshire and Vermont (number of observation is 222).

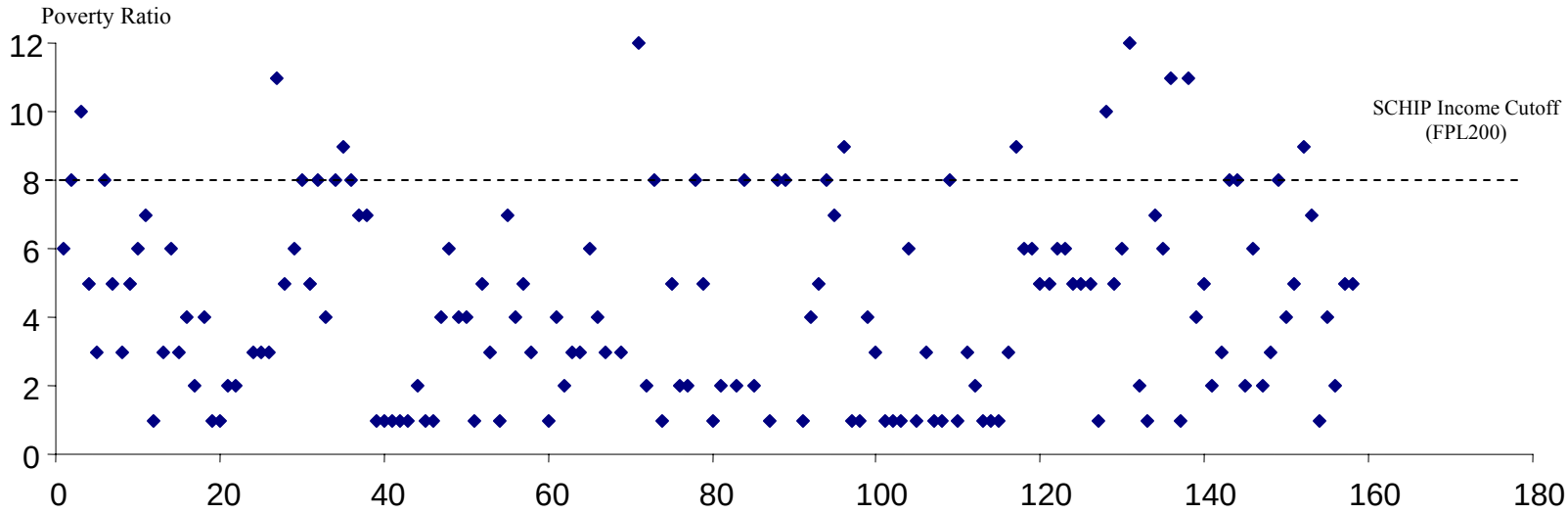

Figure 13. Distribution of ratio of income to low-income level (poverty) for SCHIP families: SCHIP income eligibility cutoff is FPL 200 for federal fiscal year 2001 (Indiana, Iowa, Kansas and Kentucky)

Source: Current Population Survey, March Supplement. 1999~2005
Note: Poverty ratio of income to low-income level ranges from 1 to 12: level 1 indicates "under 0.50, level 2 is "0.50~0.74," level 3 is "0.75~0.99," level 4 is "1.00~1.24," level 5 is "1.25~1.49," level 6 is "1.50~1.74," level 7 is "1.75~1.99," level 8 is "2.00~2.49," level 9 is "2.50~2.99," level 10 is "3.00~3.49," level 11 is "3.50~3.99" and level 12 is "4.00~4.49." Total observation used for this figure is 158.
The total number of observation used for these figures is 2099. States with SCHIP cutoffs of FPL150 are Idaho, Montana and South Carolina (number of observation is 48). States with SCHIP cutoffs of FPL185 are Colorado, Illinois, Nebraska, Oklahoma and Wisconsin (number of observation is 187). States with SCHIP cutoffs of FPL200 (number of observation is 1210) are Alabama, Alaska, Arizona, Arkansas and Delaware District of Columbia, Florida, Hawaii, Indiana, Iowa, Kansas, Kentucky Louisiana, Maine, Massachusetts, Michigan, Mississippi, Nevada, North Carolina Ohio, Pennsylvania South Dakota, Texas, Utah, Virginia and West Virginia. States with SCHIP cutoffs of FPL250 are California, New York, Rhode Island and Washington (number of observation is 432). States with SCHIP cutoffs of FPL300 are Connecticut, Maryland, Missouri, New Hampshire and Vermont (number of observation is 222).

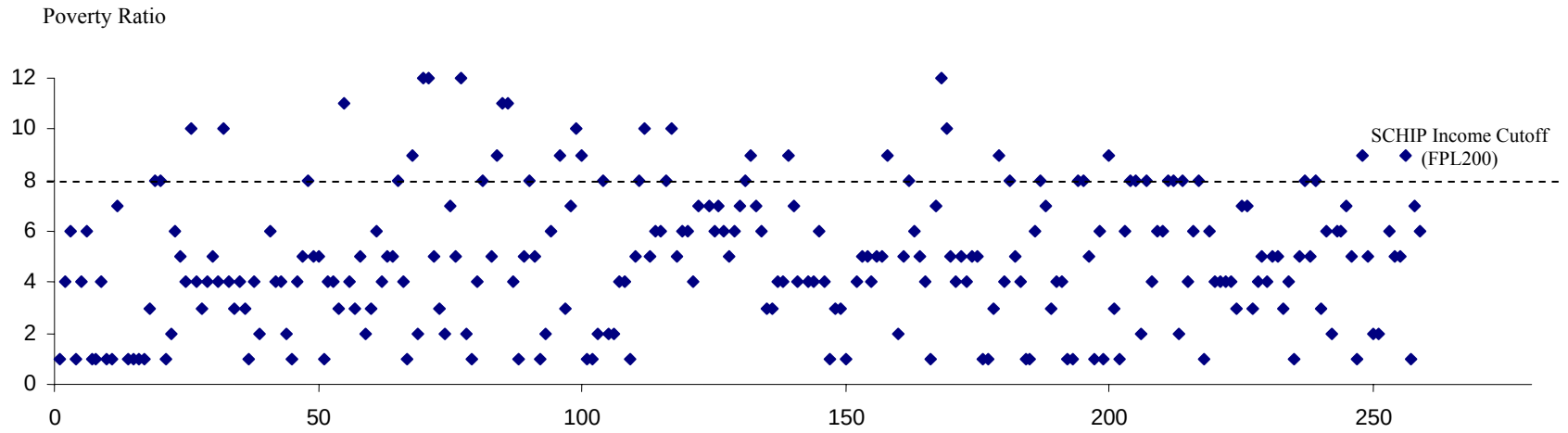

Figure 14. Distribution of ratio of income to low-income level (poverty) for SCHIP families: SCHIP income eligibility cutoff is FPL 200 for federal fiscal year 2001 (Louisiana, Maine, Massachusetts, Michigan, Mississippi, Nevada and North Carolina)

Source: Current Population Survey, March Supplement. 1999~2005
Note: Poverty ratio of income to low-income level ranges from 1 to 12: level 1 indicates "under 0.50, level 2 is "0.50~0.74," level 3 is "0.75~0.99," level 4 is "1.00~1.24," level 5 is "1.25~1.49," level 6 is "1.50~1.74," level 7 is "1.75~1.99," level 8 is "2.00~2.49," level 9 is "2.50~2.99," level 10 is "3.00~3.49," level 11 is "3.50~3.99" and level 12 is "4.00~4.49." Total observation used for this figure is 259.
The total number of observation used for these figures is 2099. States with SCHIP cutoffs of FPL150 are Idaho, Montana and South Carolina (number of observation is 48). States with SCHIP cutoffs of FPL185 are Colorado, Illinois, Nebraska, Oklahoma and Wisconsin (number of observation is 187). States with SCHIP cutoffs of FPL200 (number of observation is 1210) are Alabama, Alaska, Arizona, Arkansas and Delaware District of Columbia, Florida, Hawaii, Indiana, Iowa, Kansas, Kentucky Louisiana, Maine, Massachusetts, Michigan, Mississippi, Nevada, North Carolina Ohio, Pennsylvania South Dakota, Texas, Utah, Virginia and West Virginia. States with SCHIP cutoffs of FPL250 are California, New York, Rhode Island and Washington (number of observation is 432). States with SCHIP cutoffs of FPL300 are Connecticut, Maryland, Missouri, New Hampshire and Vermont (number of observation is 222).

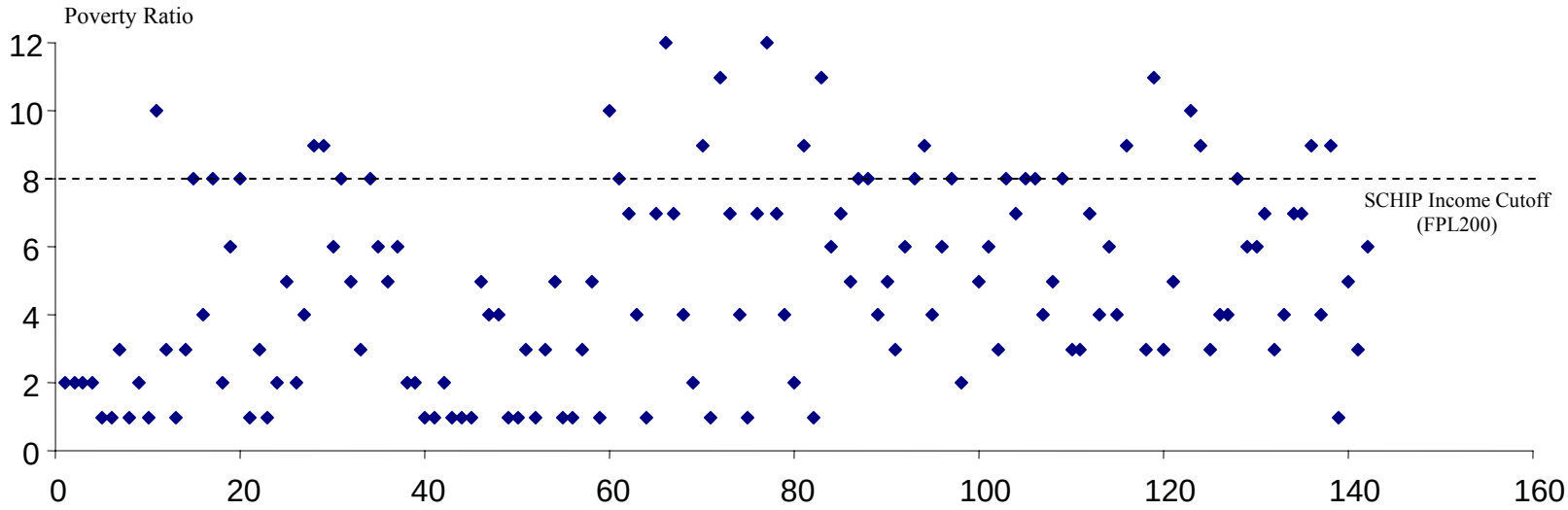

Figure 15. Distribution of ratio of income to low-income level (poverty) for SCHIP families: SCHIP income eligibility cutoff is FPL 200 for federal fiscal year 2001 (Ohio and Pennsylvania)

Source: Current Population Survey, March Supplement. 1999~2005
Note: Poverty ratio of income to low-income level ranges from 1 to 12: level 1 indicates "under 0.50, level 2 is "0.50~0.74," level 3 is "0.75~0.99," level 4 is "1.00~1.24," level 5 is "1.25~1.49," level 6 is "1.50~1.74," level 7 is "1.75~1.99," level 8 is "2.00~2.49," level 9 is "2.50~2.99," level 10 is "3.00~3.49," level 11 is "3.50~3.99" and level 12 is "4.00~4.49." Total observation used for this figure is 142.
The total number of observation used for these figures is 2099. States with SCHIP cutoffs of FPL150 are Idaho, Montana and South Carolina (number of observation is 48). States with SCHIP cutoffs of FPL185 are Colorado, Illinois, Nebraska, Oklahoma and Wisconsin (number of observation is 187). States with SCHIP cutoffs of FPL200 (number of observation is 1210) are Alabama, Alaska, Arizona, Arkansas and Delaware District of Columbia, Florida, Hawaii, Indiana, Iowa, Kansas, Kentucky Louisiana, Maine, Massachusetts, Michigan, Mississippi, Nevada, North Carolina Ohio, Pennsylvania South Dakota, Texas, Utah, Virginia and West Virginia. States with SCHIP cutoffs of FPL250 are California, New York, Rhode Island and Washington (number of observation is 432). States with SCHIP cutoffs of FPL300 are Connecticut, Maryland, Missouri, New Hampshire and Vermont (number of observation is 222).

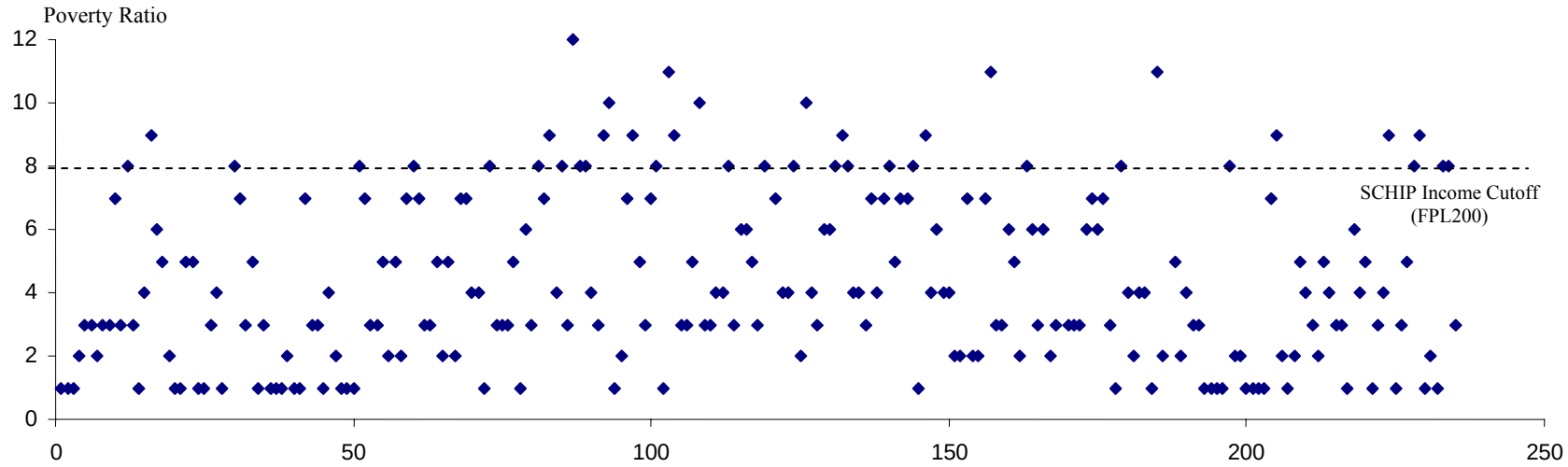

Figure 16. Distribution of ratio of income to low-income level (poverty) for SCHIP families: SCHIP income eligibility cutoff is FPL 200 for federal fiscal year 2001 (South Dakota, Texas, Utah, Virginia and West Virginia)

Source: Current Population Survey, March Supplement. 1999~2005
Note: Poverty ratio of income to low-income level ranges from 1 to 12: level 1 indicates "under 0.50, level 2 is "0.50~0.74," level 3 is "0.75~0.99," level 4 is "1.00~1.24," level 5 is "1.25~1.49," level 6 is "1.50~1.74," level 7 is "1.75~1.99," level 8 is "2.00~2.49," level 9 is "2.50~2.99," level 10 is "3.00~3.49," level 11 is "3.50~3.99" and level 12 is "4.00~4.49." Total observation used for this figure is 235.
The total number of observation used for these figures is 2099. States with SCHIP cutoffs of FPL150 are Idaho, Montana and South Carolina (number of observation is 48). States with SCHIP cutoffs of FPL185 are Colorado, Illinois, Nebraska, Oklahoma and Wisconsin (number of observation is 187). States with SCHIP cutoffs of FPL200 (number of observation is 1210) are Alabama, Alaska, Arizona, Arkansas and Delaware District of Columbia, Florida, Hawaii, Indiana, Iowa, Kansas, Kentucky Louisiana, Maine, Massachusetts, Michigan, Mississippi, Nevada, North Carolina Ohio, Pennsylvania South Dakota, Texas, Utah, Virginia and West Virginia. States with SCHIP cutoffs of FPL250 are California, New York, Rhode Island and Washington (number of observation is 432). States with SCHIP cutoffs of FPL300 are Connecticut, Maryland, Missouri, New Hampshire and Vermont (number of observation is 222).

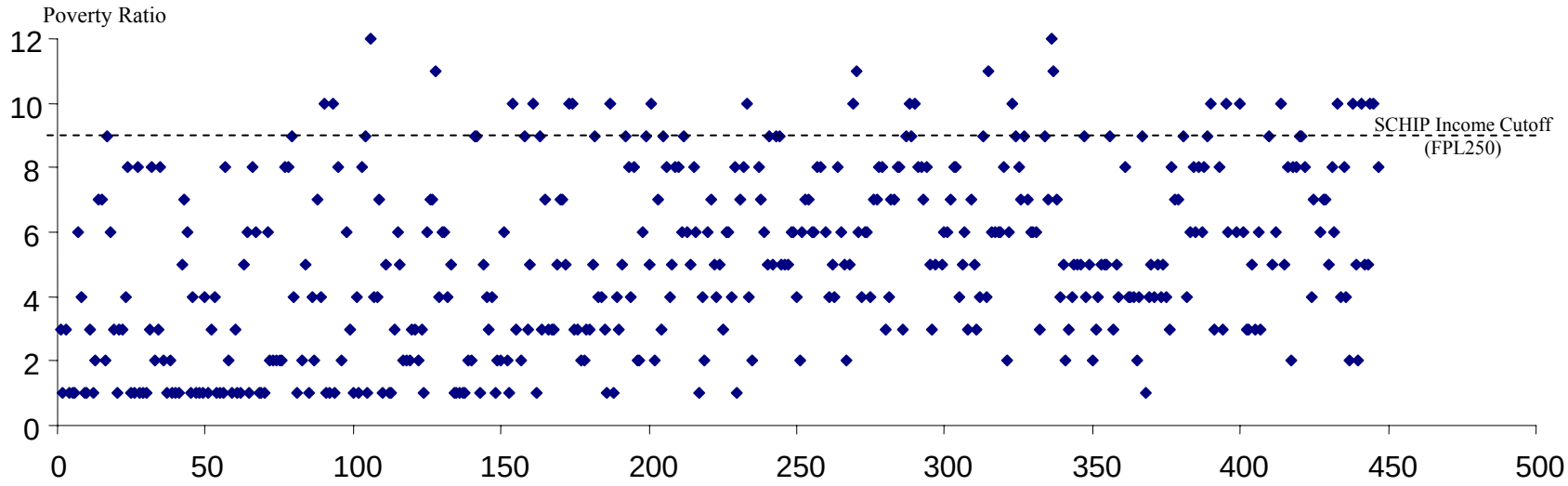

Figure 17. Distribution of ratio of income to low-income level (poverty) for SCHIP families: SCHIP income eligibility cutoff is FPL 250 for federal fiscal year 2001 (California, New York, Rhode Island and Washington)

Source: Current Population Survey, March Supplement. 1999~2005
Note: Poverty ratio of income to low-income level ranges from 1 to 12: level 1 indicates "under 0.50, level 2 is "0.50~0.74," level 3 is "0.75~0.99," level 4 is "1.00~1.24," level 5 is "1.25~1.49," level 6 is "1.50~1.74," level 7 is "1.75~1.99," level 8 is "2.00~2.49," level 9 is "2.50~2.99," level 10 is "3.00~3.49," level 11 is "3.50~3.99" and level 12 is "4.00~4.49." Total observation used for this figure is 432.
The total number of observation used for these figures is 2099. States with SCHIP cutoffs of FPL150 are Idaho, Montana and South Carolina (number of observation is 48). States with SCHIP cutoffs of FPL185 are Colorado, Illinois, Nebraska, Oklahoma and Wisconsin (number of observation is 187). States with SCHIP cutoffs of FPL200 (number of observation is 1210) are Alabama, Alaska, Arizona, Arkansas and Delaware District of Columbia, Florida, Hawaii, Indiana, Iowa, Kansas, Kentucky Louisiana, Maine, Massachusetts, Michigan, Mississippi, Nevada, North Carolina Ohio, Pennsylvania South Dakota, Texas, Utah, Virginia and West Virginia. States with SCHIP cutoffs of FPL250 are California, New York, Rhode Island and Washington (number of observation is 432). States with SCHIP cutoffs of FPL300 are Connecticut, Maryland, Missouri, New Hampshire and Vermont (number of observation is 222).

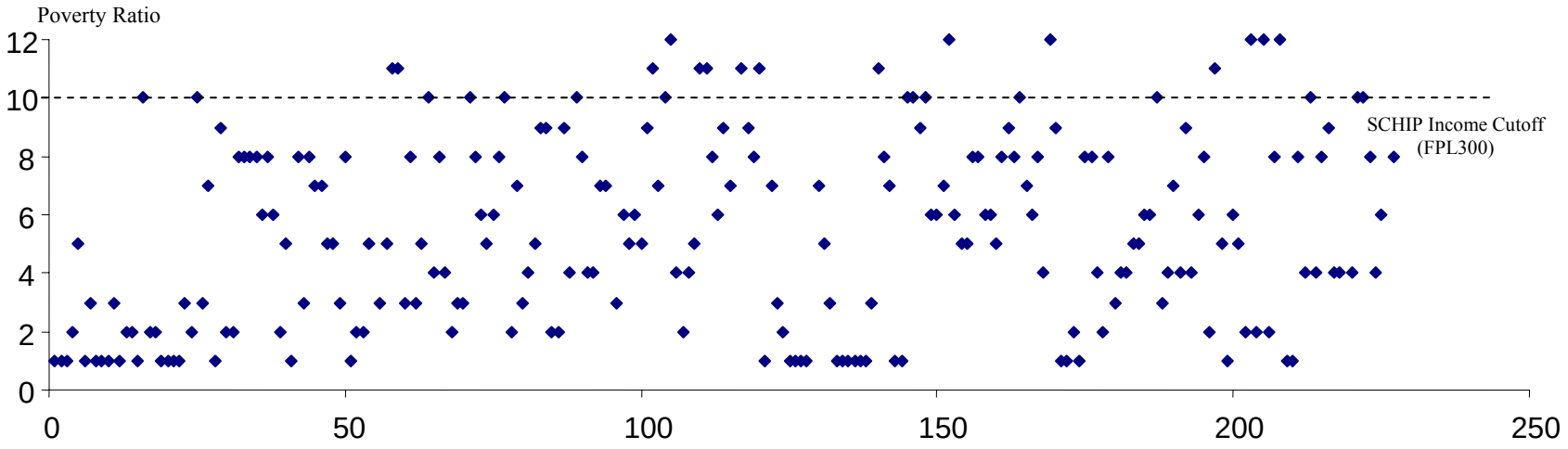

Figure 18. Distribution of ratio of income to low-income level (poverty) for SCHIP families: SCHIP Income Eligibility Cutoff is FPL 300 for Federal Fiscal Year 2001 (Connecticut, Maryland, Missouri, New Hampshire and Vermont)

Source: Current Population Survey, March Supplement. 1999~2005
Note: Poverty ratio of income to low-income level ranges from 1 to 12: level 1 indicates "under 0.50, level 2 is "0.50~0.74," level 3 is "0.75~0.99," level 4 is "1.00~1.24," level 5 is "1.25~1.49," level 6 is "1.50~1.74," level 7 is "1.75~1.99," level 8 is "2.00~2.49," level 9 is "2.50~2.99," level 10 is "3.00~3.49," level 11 is "3.50~3.99" and level 12 is "4.00~4.49." Total observation used for this figure is 222.
The total number of observation used for these figures is 2099. States with SCHIP cutoffs of FPL150 are Idaho, Montana and South Carolina (number of observation is 48). States with SCHIP cutoffs of FPL185 are Colorado, Illinois, Nebraska, Oklahoma and Wisconsin (number of observation is 187). States with SCHIP cutoffs of FPL200 (number of observation is 1210) are Alabama, Alaska, Arizona, Arkansas and Delaware District of Columbia, Florida, Hawaii, Indiana, Iowa, Kansas, Kentucky Louisiana, Maine, Massachusetts, Michigan, Mississippi, Nevada, North Carolina Ohio, Pennsylvania South Dakota, Texas, Utah, Virginia and West Virginia. States with SCHIP cutoffs of FPL250 are California, New York, Rhode Island and Washington (number of observation is 432). States with SCHIP cutoffs of FPL300 are Connecticut, Maryland, Missouri, New Hampshire and Vermont (number of observation is 222).

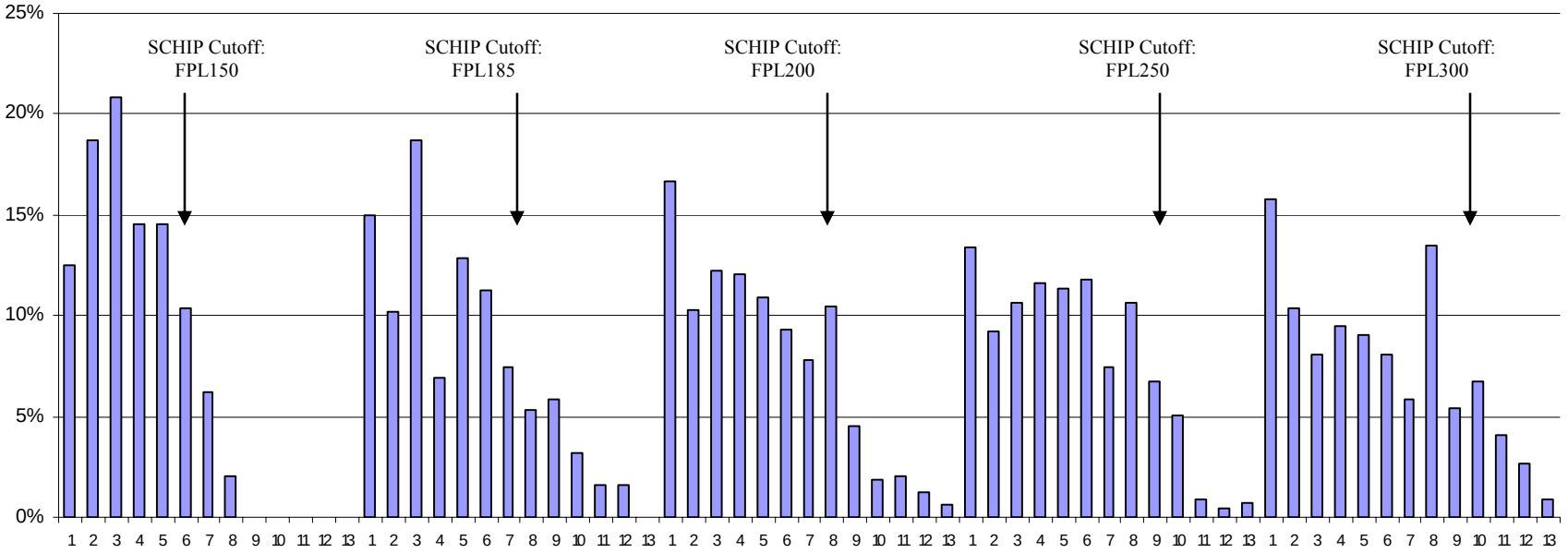

Figure 19. Changes in distribution of ratio of income to low-income level (poverty) for SCHIP families:SCHIP income eligibility cutoff is FPL 150 through FPL 300 for federal fiscal year 2001

Source: Current Population Survey, March Supplement. 1999~2005
Note: Poverty ratio of income to low-income level ranges from 1 to 12: level 1 indicates "under 0.50, level 2 is "0.50~0.74," level 3 is "0.75~0.99," level 4 is "1.00~1.24," level 5 is "1.25~1.49," level 6 is "1.50~1.74," level 7 is "1.75~1.99," level 8 is "2.00~2.49," level 9 is "2.50~2.99," level 10 is "3.00~3.49," level 11 is "3.50~3.99" and level 12 is "4.00~4.49." Total observation used for this figure is 2099. States for SCHIP Cutoff FPL150 (number of observation=48) are Idaho, Montana and South Carolina. States for SCHIP Cutoff FPL185 (number of observation=187) are Colorado, Illinois, Nebraska, Oklahoma and Wisconsin. States for SCHIP Cutoff FPL200 (number of observation=1210) are Alabama, Alaska, Arizona, Arkansas and Delaware District of Columbia, Florida and Hawaii Indiana, Iowa, Kansas and Kentucky Louisiana, Maine, Massachusetts, Michigan, Mississippi, Nevada and North Carolina Ohio and Pennsylvania South Dakota, Texas, Utah, Virginia and West Virginia. States for SCHIP Cutoff FPL250 (number of observation=432) are California, New York, Rhode Island and Washington. States for SCHIP cutoff FPL300 (number of observation=222) are Connecticut, Maryland, Missouri, New Hampshire and Vermont.

Results

In Table 19, we present the results of estimating the Probit employment equation (columns 1-2) and Heckman two-step procedure of working-hours equation (columns 3-4) both with and without STATE*TIME interaction terms. The results indicate that there are statistically significant effects of the SCHIP expansion on single mothers' working hours, based on the coefficient estimate on the GAIN variable. The effect of the SCHIP on single mothers' labor force participation, however, though statistically insignificantly positive, is trivially small.

The estimated change from the SCHIP expansion is calculated by comparing the actual average of working hours per year from 1999 to 2005 for the sample with the predicted working hours when GAIN variable is at equal to zero.[30] The result shows that the SCHIP expansion in income eligibility increases the single mothers' working hours by approximately 3.3 percent (3.2 percent without state and time interaction term). Table 19 also shows simulated effect of the SCHIP expansion on single mothers' working hours by increasing the GAIN variable 20 percent above its current level. This simulation increases the single mothers' working hours by 3.9 percent with or 3.3 percent without state and time interaction. [31]

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[30] The estimated change from SCHIP expansion in 1999 through 2005 was calculated as;

$$\frac{Average\ of\ Working\ Hours - (predicted\ \ Working\ Hours - Estimated\ Coefficient\ of\ GAIN \times Average\ of\ GAIN\%)}{Average\ of\ Working\ Hours}$$

.

The predicted working hours without STATE*TIME is 1763.93 hours. The average of GAIN% for sample participated in labor market is 86.2331.

[31] The simulated change from the SCHIP expansion by increasing 20 percent GAIN variable above its current level was calculated as:

Estimated coefficients for the other variables are similar in significance and sign to Winkler (1991) and Yelowitz (1995). The number of own children under age 6 in the family, central city indicators, the number of person in the family, the square of the mother's age have negative and statistically significant effects on single mother's labor force participation and working hours. The mother's age, education indicator, white and divorced (marital status) variables have positive and statistically significant effects on single mothers' employment and working hours.

Because the data show meaningful differences in the characteristics of single mothers stratified by marital status, it is important to ask whether there are differences in the responses of these women to the SCHIP expansions. One might anticipate that the never-married single mothers would be more sensitive to the income eligibility expansion because single mothers who are either separated or divorced are more likely to have health insurance coverage for the children through the absent father. [32] Therefore, the extent of income eligibility through SCHIP might not be as important for this group. In addition, from the Table 18, we see that never married status could proxy for lower income prospects. The never married single mothers tend to be younger, lower-educated and less likely to be working women, compared to previously married single mothers.

$$\frac{Average\ of\ Working\ Hours - (predicted\ Working\ Hours - Estimated\ Coefficient\ of\ GAIN \times Average\ of\ GAIN\% \times 1.2)}{Average\ of\ Working\ Hours}$$

[32] Yelowitz (1995) reported that only 6.3 percent of never married women have health insurance coverage through an absent father, compared with 22 percent of separated women and 34 percent of divorced women.

TABLE 19. REGRESSION RESULTS OF PROBABILITY OF WORKING AND HOURS OF WORK

	Probit model Regression Coefficients (Dependent Variable: Labor force Participation)		Heckman two-step procedure (Dependent Variable: Working Hours)	
GAIN Variable	0.0007**	0.0005	0.6486***	0.6853***
	(0.0003)	(0.0004)	(0.1525)	(0.1700)
Estimated change from the SCHP expansion in 1999 through 2005	N/A	N/A	0.0317	0.0326
Simulated change from the SCHIP expansion by increasing 20 percent GAIN variable above its current level	N/A	N/A	0.0381	0.0391
Mother's age	0.0661***	0.0671***	80.1125***	77.9213***
	(0.0069)	(0.0069)	(5.2258)	(5.2597)
Mother's age²/100	-0.0971***	-0.0987***	-92.4019***	-89.3876***
	(0.0094)	(0.0095)	(7.3956)	(7.4385)
Number of own child < age 6	-0.1429***	-0.1456***	-53.4362***	-47.3158***
	(0.0142)	(0.0144)	(11.7270)	(11.9200)
Number of person in family	-0.0522***	-0.0514***	-23.5185***	-22.0193***
	(0.0072)	(0.0072)	(4.9001)	(4.9360)
Education	0.6070***	0.6100***	186.4823***	164.8276***
	(0.0181)	(0.0182)	(42.7837)	(42.9758)
Central City	-0.1166***	-0.1138***	-0.9059	-0.9456
	(0.0178)	(0.0179)	(11.0900)	(11.1677)
White	0.2132***	0.2206***	70.0680***	65.0022***
	(0.0339)	(0.0340)	(21.4270)	(21.5762)
Divorced	0.1439***	0.1443***	65.5869***	60.7853***
	(0.0240)	(0.0240)	(12.9511)	(13.0559)
Never married	-0.0667***	-0.0674***	41.4390***	41.7533***
	(0.0235)	(0.0236)	(12.9511)	(12.4555)
Northeast	-0.1312	-0.1392	-154.2494***	-23.4690
	(0.1090)	(0.1356)	(48.4207)	(131.6439)
Constant	-0.1964	-0.1930	-8.9870	-51.1099
	(0.1450)	(0.1467)	(142.356)	(156.3622)
STATE*TIME	No	Yes	No	Yes

Note: Standard errors are in parentheses. The number of observation is 41,714. STATE, TIME, KIDAGE indicators are included in all specifications. *** indicates significant at the 99 percent level. The estimated and simulated changes in labor force participation equation is not available due to the statistically insignificant results of estimation.

Tables 20 through 22 present the results for the equation re-estimated with the sample stratified by marital status (never married, separated and divorced status). These equations include the same explanatory variables as in the primary models in Table 19. Interestingly, we found that the SCHIP expansions have strong impacts on never married single women in both labor participation and working hours equation, and virtually no effect on previously married women in labor participation equation. The second rows of Table 20 shows that the SCHIP expansion in income eligibility increases the single mothers' working hours by approximately 4 percent (5.2 percent with STATE*TIME interaction term), and increase labor force participation by 1.8 percent (1.7 percent with STATE*TIME interactions). The third row of Table 20 presents the simulated effect of the SCHIP expansion on single mothers' working hours and labor force participation by increasing the GAIN variable 20 percent above its current level. This simulation yields the results that single mothers' working hours increase by 4.7 percent without or 6.2 percent with STATE*TIME interactions, and labor force participation increases by 2.1 percent without or 2.0 percent with STATE*TIME interactions. Similar to the results reported in Yelowitz (1995), coefficients on the *GAIN* variables in labor force participation for separated or divorce single mothers are statistically insignificant and negative, and whereas coefficients on the GAIN variables in the working hour equation for separated women are insignificant and positive.

TABLE 20. REGRESSION RESULTS OF PROBABILITY OF WORKING AND HOURS OF WORK (NEVER MARRIED SINGLE MOTHERS)

	Probit model Regression Coefficients (Dependent Variable: Labor force Participation)		Heckman two-step procedure (Dependent Variable: Working Hours)	
GAIN Variable	0.0017***	0.0016***	0.8078***	1.0236***
	(0.0005)	(0.0005)	(0.3056)	(0.3300)
Estimated change from the SCHP expansion in 1999 through 2005	0.1760	0.1661	0.0395	0.0520
Simulated change from the SCHIP expansion by increasing 20 percent GAIN variable above its current level	0.2112	0.1992	0.0474	0.0624
Mother's age	0.0890***	0.0923***	127.0466***	123.2889***
	(0.0097)	(0.0095)	(10.5500)	(10.6415)
Mother's age²/100	-0.1342***	-0.1390***	-161.9346***	-157.1636***
	(0.0143)	(0.0144)	(15.8179)	(15.9594)
Number of own child < age 6	-0.1107***	-0.1114***	-57.5372***	-51.6046***
	(0.0188)	(0.0192)	(15.8319)	(16.0481)
Number of person in family	-0.0492***	-0.0490***	-35.9771***	-31.9545***
	(0.0101)	(0.0102)	(7.8513)	(7.8611)
Education	0.5946***	0.6008***	321.9107***	301.1099***
	(0.0238)	(0.240)	(68.8837)	(69.9023)
Central City	-0.1224***	-0.1168***	-18.0500	-13.2935
	(0.0245)	(0.0248)	(18.2266)	(18.2300)
White	0.2962***	0.2906***	142.5008***	147.1264***
	(0.0477)	(0.0480)	(41.4217)	(41.6312)
Northeast	-0.0488*	0.4811	-190.5672**	-598.5678**
	(0.1662)	(0.2829)	(92.3454)	(265.1376)
Constant	-0.6131**	-0.6742***	-984.2004***	-1056.656***
	(0.1992)	(0.1997)	(266.5319)	(287.2127)
Number of Observation	18,811	18,754	18,811	18,811
STATE*TIME	No	Yes	No	Yes

Note: Standard errors are in parentheses. STATE, TIME and KIDAGE indicators are included in all specifications. ***, **, * indicates significant at the 99 percent, 95 percent and 90 percent level.

TABLE 21. REGRESSION RESULTS OF PROBABILITY OF WORKING AND HOURS OF WORK (SEPARATED SINGLE MOTHERS)

	Probit model Regression Coefficients (Dependent Variable: Labor force Participation)		Heckman two-step procedure (Dependent Variable: Working Hours)	
GAIN Variable	-0.0008	-0.0012	0.7596*	0.4502
	(0.0008	(0.0009)	(0.4604)	(0.5245)
Mother's age	0.0825***	0.0839***	37.9251*	40.0310**
	(0.0208	(0.0217)	(18.5779)	(18.9714)
Mother's age²/100	-0.1209***	-0.1231***	-40.5396	-43.4712
	(0.0275	(0.0286)	(26.3582)	(26.9447)
Number of own child < age 6	-0.1549***	-0.1683***	-106.2451***	-115.5052***
	(0.0361	(0.0378)	(35.3147)	(36.3890)
Number of person in family	-0.0909***	-0.0921***	-29.5300	-36.3555**
	(0.0163	(0.0167)	(19.6407)	(20.1371)
Education	0.4501***	0.4601***	164.1791*	196.3608**
	(0.0443	(0.0454)	(90.4763)	(93.1005)
Central City	-0.1181*	-0.1169	-22.0780	-41.3555
	(0.0451	(0.0465)	(31.5000)	(32.2000)
White	0.0933	0.1163	-37.4601	-10.7531
	(0.0901	(0.0906)	(48.7227)	(49.3462)
Northeast	0.0215	-0.3366	270.1500	203.6593
	(0.3519	(0.3994)	(158.6399)	(335.7915)
Constant	-0.0651	-0.0838	914.7057**	565.9561
	(0.4434	(0.4609)	(404.5925)	(448.2776)
Number of Observation	5971	5766	5974	5974
STATE*TIME	No	Yes	No	Yes

Note: Standard errors are in parentheses. STATE, TIME and KIDAGE indicators are included in all specifications. ***, **, * indicates significant at the 99 percent, 95 percent and 90 percent level.

TABLE 22. REGRESSION RESULTS OF PROBABILITY OF WORKING AND HOURS OF WORK (DIVORCED SINGLE MOTHERS)

	Probit model Regression Coefficients (Dependent Variable: Labor force Participation)		Heckman two-step procedure (Dependent Variable: Working Hours)	
GAIN Variable	-0.0006	-0.0011	0.8958***	0.9202***
	(0..0005)	(0.0005)	(0.2420)	(0.2703)
Estimated change from the SCHP expansion in 1999 through 2005	N/A	N/A	0.0413	0.0420
Simulated change from the SCHIP expansion by increasing 20 percent GAIN variable above its current level	N/A	N/A	0.0500	0.0504
Mother's age	0.0276	0.0263	47.4490***	47.7599***
	(0.0161)	(0.1633)	(7.7632)	(7.9723)
Mother's age²/100	-0.0439***	-0.0425*	-49.1539***	-49.1159***
	(0.0206)	(0.0208)	(10.0988)	(10.3498)
Number of own child < age 6	-0.2273**	-0.2480***	-32.3678	-19.3655
	(0.0286)	(0.0292)	(24.1201)	(24.2547)
Number of person in family	-0.0406***	-0.0400**	-14.1157**	-14.2396**
	(0.0130)	(0.0132)	(6.9419)	(7.0673)
Education	0.7398**	0.7524	61.8934	23.6250
	(0.0362)	(0.0366)	(76.6068)	(75.6418)
Central City	-0.1137**	-0.1064	9.6649	13.3789
	(0.0326)	(0.0330)	(17.4370)	(17.7379)
White	0.1854	0.1763*	63.7017**	56.7972*
	(0.0604)	(0.0609)	(32.2392)	(32.7892)
Northeast	0.0267	0.1268	-61.4083	45.4702
	(0.1495)	(0.1942)	(62.1017)	(184.3392)
Constant	0.5184	0.5647	847.2137***	859.2063***
	(0.3337)	(0.3573)	(199.6288)	(222.1446)
Number of Observation	16,928	16,766	16,929	16,929
STATE*TIME	No	Yes	No	Yes

Note: Standard errors are in parentheses. STATE, TIME and KIDAGE indicators are included in all specifications. ***, **, * indicates significant at the 99 percent, 95 percent and 90 percent level.

Chapter V

Summary and Conclusion

This research analyzes the impacts of expanding eligibility for the State Children's Health Insurance Program. We first examine the magnitude of the crowd-out effect on private insurance, using longitudinal data from the SIPP data base. We then examine whether expanding eligibility for SCHIP has had an impact on the mothers' labor supply. The labor supply estimates are based on data from the Current Population Survey from 1999 to 2005. Although the primary contributions of this work are the empirical estimates, a basic theoretical structure is provided.

There has been much concern among policy makers and state governments regarding the potential for crowd-out resulting from the SCHIP expansions for children. Our empirical results on this issue are obtained using longitudinal data from the 2001 panel of the SIPP. We find that the nearly 26 percent of transitions from private coverage into SCHIP coverage were made by children who would have had private coverage in the absence of the expansions For the overall crowd-out of private coverage, we find that 52.9 percent of the eligible children who moved to SCHIP from either private coverage or uninsured status would have had private coverage in the absence of the expansions. We find no evidence that those who were initially uninsured, but gained eligibility for SCHIP transitioned to private coverage in greater proportions than children in the control group.

The use of the longitudinal dataset to examine the crowd-out effect of the SCHIP allows us to address questions that could not be answered in previous studies that were based on cross-sectional datasets such as CPS and the early SCHIP dataset. Despite the relatively small sample size of the SIPP, we obtained statistically significant results in our models. The results from this study strongly suggest that the increased public coverage in low-income children after SCHIP implemented did not result from a substantive decrease in the uninsurance rate, but in fact resulted from decreases in private insurance coverage. About 53 percent of the movement from private coverage or uninsured status into the SCHIP program was attributable to displacement.

Our result of an overall crowd-out effect of SCHIP of 53 percent and substitution effect of 26 percent in moving from private coverage to SCHIP is somewhat higher than most of the previous studies that examined the crowd-out effect of Medicaid expansions in 1980s and early1990s. These results are not unexpected considering that the target group for the SCHIP expansion has higher-incomes and thus higher rates of private insurance coverage than the earlier Medicaid expansion target groups. Because the higher income group is likely to have a higher substitution effect than the lower income group, analysts predicted that it would lead to individuals dropping out of private insurance, when the SCHIP program was first signed into law in 1997. The higher the income eligibility for SCHIP and the greater the possibility of interaction between public and private insurance markets, the greater potential for crowd-out is. Another explanation of our results is that SCHIP programs offer generous benefits at substantially lower cost than most private insurance program.

The second research question concerns the impact of the SCHIP expansions on mothers' labor supply. Using data from the Current Population Survey from 1999 to 2005, we estimated the effects of SCHIP income eligibility expansions on both single mothers' decision to work and their working hours. The major findings of this paper are: first, SCHIP expansions have a significant positive impact on the hours-worked decision. Second, whereas most models yielded results indicating that SCHIP expansions have a generally insignificant impact on the decision to work, when the data are stratified into sub-samples based on marital status (never married, separated and divorced), the SCHIP expansions had a stronger impact on both never married single mother's work decision and hours-worked decision, but insignificant impacts on previously married mother's labor supply.

Although the impact of the SCHIP expansion on the decision to work is statistically significant, the effect is small. The 20 percent increase over current SCHIP income level is expected to increase a never married single mother's probability of being employed by 2.0 to 2.1 percentage points. Generally, the impact of the SCHIP expansion increasing our measure of eligibility 20 percent above its current level is estimated to increase an average single mother's working hours by 3.2 percent (for the full sample in some specifications) to 6.2 percent points (specifications for never married women).

In conclusion, the results of this paper would tend to reduce the fears of economists, policy makers, and the public that income eligibility expansion for the public health insurance reduces work incentives. Expanding eligibility for public health insurance could result in reduced expenditures for recipients by encouraging them to participate in labor force and results in some growth in the taxable base due to increased

hours of work. However, several cautions must be applied in interpreting these findings. First, because the SCHIP expansions' impact on single mother's labor force participation is not necessarily representative, generalizing our results might be not appropriate for other demographic groups. Second, expanding public health insurance coverage might have had an effect on the demand for private coverage. The distortion of consumer's decision on health insurance could increase the government expenditures for health care of newly eligible children, as our chapter III results on crowd out would indicate.

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