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

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This paper estimates the crowd-out of private health insurance following SCHIP expansions for children. This study uses panel data from the 2001 panel of the Survey of Income and Program Participation (SIPP). This research uses 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. This paper provides evidence that the SCHIP expansions have overall displacement affect of 52.9 percent for private coverage for those children who had private coverage or were uninsured from the first interview in 2001.

Key words: Public Health Insurance, SCHIP, Private Health Insurance, Difference-In-Difference, Crowding out

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I. 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 (2007) 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. The main purpose of this study extends the previous literature by using actual SCHIP coverage variable in 2001-2003 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 second goal of present paper suggests Korean government the highly potential risk occurred in expenditure expansion on the light of US medical expenditure expansion. The Korean policy-makers may learn how exactly on targeted group of people is government's spending, and use the difference-in-difference method to estimate the displacement of the purposed amount of expenditure by crowding-out of those who are not supposed to be on government's goal.

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).

This study 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.

I. 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 nearpoor children and parents using various methods.

1. 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. Crosssectional 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. 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.

An important study in the crowd-out literature is Cutler and Gruber (1996). 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 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.

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). 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.

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 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.

Sommers et al. (2007) conclude that among children who were newly enrolled in SCHIP in 2002 in ten states, about 14 percent had private coverage that they could have retained as an alternative to SCHIP.

2. Longitudinal studies

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.

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 conclude that 16 percent of the new Medicaid enrollees in 1990 and 1994 represented a crowding-out of private insurance

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 estimate that overall 19 percent of new enrollment of Medicaid coverage was attributable to crowdout.

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 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.

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. 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.

II. Data and method

This study estimates the crowd-out of private health insurance following SCHIP expansions for children. I 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.

This current study identifies 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 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 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).

This paper drops children who leave the original sample households interviewed in the first wave. I also restrict my 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 1 through 3, I 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).

This paper uses linear probability models as in Blumberg, Dubay and Norton (2000) for estimation. This paper estimates three sets of linear probability models for the extent of crowd-out. In the first set, we can restrict the sample to children with private health insurance at the first interview. Then we estimate four separate equations through the linear probability model. This study estimates: 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, this paper restricts the sample to children with private health insurance or uninsured status at the first interview of the survey. Again, four transition equations are estimated. 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:

$$Pr(coverage_{i2} \mid coverage_{i1}) = \beta_0 + \beta_1 treatment_i + \beta X + STATE_i + \varepsilon$$
(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). 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 calculate the extent of expansion-related crowd-out of SCHIP for the children with private coverage at the first interview, this research divides 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.

IV. Results

Tables 1 through 3 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 1 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 2 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 3 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 2, 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 4 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, I 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	1. SUMM	IARY S	STATISTI	CS OF	VARIA	BLES U	SED	IN REGRE	SSIO	NS FO	R
	CHILI	DREN	WITH	PRIVA	TE IN	FIRST	INT	ERVIEW	BAS	ED O	N
	COVE	RAGE	DURING	i THE	FINAL	WAVE	(NO	CHANGE	SIN	FAMIL	Y
	INCOM	IE DU	ring su	RVEY)							

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	(not reported)			
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 my 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 2. 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	Trootmo	nt Croup	Control Croup		
variables	Treatme	nt 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	(not reported)				
Weighted Number of Observation	675	5,871	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 my 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 3. 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	Treatme	nt 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	(not reported)				
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 my estimation, so individuals who have any changes in family income during survey are excluded in this table and estimation. Source: the SIPP 2001 Panel

	Movement into Private	Movement into SCHIP	Movement into Medicaid	Movement into Uninsured
Member of	-0.0063	0.0245**	-0.0118	-0.0064
Treatment Group	(0.0178)	(0.0096)	(0.0092)	(0.0133)
Constant	-0.5419***	0.0675***	0.0795***	0.3110***
	(0.0809)	(0.0176)	(0.0244)	(0.0817)
R2	0.0863	0.0300	0.0682	0.0404
Number of Observation	7,349	7,349	7,349	7,349

Table 4. RESULTS OF PROBABILITY MODEL FOR CHILDREN WITH PRIVATE HEALTH INSURANCE AT THE FIRST INTERVIEW

Note: 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 my estimation.

Table 5. RESULTS OF PROBABILITY MODEL FOR CHILDREN WITH UNINSURED STATUS AT THE FIRST INTERVIEW

	Movement into Private	Movement into SCHIP	Movement into Medicaid	Movement into Uninsured
Member of	-0.0712*	0.0744**	-0.0750**	0.1718
Treatment Group	(0.0395)	(0.0312)	(0.0347)	(0.0442)
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 my estimation.

	Movement into Private	Movement into SCHIP	Movement into Medicaid	Movement into Uninsured
Member of	-0.0176	0.0333***	-0.0309***	0.0152
Treatment Group	(0.0160)	(0.0099)	(0.0101)	(0.0137)
Uninsured	-0.4618***	0.0476***	0.1594***	0.2547***
at the first interview	(0.0141)	(0.0077)	(0.0114)	(0.0137)
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

Table 6. RESULTS OF PROBABILITY MODEL FOR CHILDREN WITH PRIVATE HEALTH INSURANCE OR UNINSURED STATUS AT THE FIRST INTERVIEW

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 my estimation.

Table 5 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 6 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.

This study concludes 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, this study divides 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 I 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.

V. Conclusion

There has been much concern among policy makers and state governments regarding the potential for crowd-out resulting from the SCHIP expansions for children. Empirical results on this issue are obtained using longitudinal data from the 2001 panel of the SIPP. This research finds 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, this study 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.

Despite the relatively small sample size of the SIPP, this paper obtained statistically significant results in my 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.

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 my results is that SCHIP programs offer generous benefits at substantially lower cost than most private insurance program.

What can we learn from these results? First, Korean government also has the intended purposes in government's medical expenditure expansion. They wish to increase the level of well-beings on targeted people. However, the more generous eligibility for inkind government transfers is, the more likely unintended group of people tend to get in the new programs. In fact, this paper suggests that displacement of purposed group of people with not others occurs on the significantly high possibility. Second, this paper provides the method to evaluate effects of the government's programs to expand medical expenditures. This present research suggests that, after government implementing new public programs, the difference-in-difference estimation using panel data would be the one of methods to do the research on how much exactly the policy-makers' intention is on targeted people.

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미국의 저소득층 어린이와 임산부를 위한 공공의료보험프로그램에 대한 사보험 가입자의 대체효과

이경우

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이 논문은 미국에서 1997년에 새롭게 제공된 "저소득층의 어린이와 임산부를 위한 공공의료보험프로그램(SCHIP)"이 사적의료보험 가입자들에게 미치는 효과를 분석하 였다. 본 연구는 1997년 SCHIP의 공공의료보험확대를 통해 새롭게 혜택을 받은 그룹 을 처리집단으로, SCHIP과는 상관없이 항상 공공의료보험에 가입이 되었거나, 또는 가입대상이 되지 못하는 그룹을 통제집단으로 구분하여 이중차감법(Difference-In-Difference)을 통해 분석하였다. 본고는 2003년 패널조사의 마지막 인터뷰에서 SCHIP에 서 제공하는 공공의료보험에 가입이 되어있는 가구주들의 52.9%가 기존의 사보험가입 자에 의해 대체된 것이며, SCHIP의 주요한 목적중의 하나인 의료보험 비가입자에 대 한 효과는 통계적으로 유효하지 않았다. 결론적으로 SCHIP을 통한 의료보험혜택의 확 대가 저소득층에 대한 정부현물보조 형태의 소득보존효과는 있었으나, 공공의료보험 가입비율이 개선되었냐는 질문에는 다소 회의적인 결과를 얻게 되었다.

주요용어: 공공의료보험, 공공의료비지출, 구축효과, 재정지출확대