Spillover Effects of Children's Public Health Insurance on Family Members' Health-Seeking Behavior

Motivation

Over the past twenty years, there have been many attempts to expand health insurance coverage for children in the United States, including the expansion of the Medicaid program to low-income children during 1984-1992 and the creation of the State Children's Health Insurance Program (SCHIP) in 1997. Studies show that the expansion of Medicaid together with the implementation of SCHIP have reduced the rates of uninsured children, improved the access to and utilization of medical care, and led to better health outcomes (See Currie and Gruber (1996a,b), Hudson et al. (2005), Kenney (2007), for examples). Nevertheless, this expansion of public health insurance not only has direct effects on previously uninsured children, but it could also potentially have both direct and indirect impacts on the care-takers of the children. On the one hand, once children become insured by public health insurance, the out-of-pocket expenditures for children's health care decrease. On the other hand, this reduction in the parents' out-of-pocket expenditure can relax the family's budget constraint and, hence, allow them to spend more on their own health care. Moreover, since the insured children are less likely to get sick in the first place, the parents will even have more resources to take care of themselves. The indirect impacts of children's public health insurance on the parents' health care utilization are thus the focus of this paper.

Research objective

The objective of this paper is to determine the spillover effects of children's public health insurance program on health care consumption of the adult members in the family, given that the demographics, health status, and health insurance of the adults are controlled for. Since children's public health insurance is endogenous, we will instrument for this variable by using state's eligibility for Medicaid and SCHIP.

Data and methodology

The data used in this paper comes from the U.S. National Health Interview Survey (NHIS) during 1997-2006. The NHIS is a cross-sectional household, face-to-face health interview survey of approximately 40,000 households per year, and the sample is a representative of the civilian, non-institutionalized population living in the United States, excluding residents in long-term care facilities, active-duty Armed Forces personnel, and U.S. nationals living abroad. Given that the state-identifier variable is restricted from public users, we first use the data from the Integrated Health Interview Series (IHIS), which is a harmonized dataset from the NHIS and is available for public use, in the analysis. At this stage, we simply determine in the impact of children's public health insurance on their parents' access to medical care and health care utilization, regardless of endogeneity issues.

In the later stage, after obtaining permission to have access to restricted data on geographical identification, we will link the samples obtained from the IHIS database to the samples in NHIS. Then, the state-identifier variable available in the NHIS will be used to determine state's eligibility rules for Medicaid and SCHIP, and the predicted eligibility for Medicaid and SCHIP will be used as an instrumental variable for public health insurance in finding the spillover effects on the parents' health care use. In both stages, the parents' demographic characteristics, health status, and health insurance will be controlled for.

Empirical strategy

In the first stage, we use a logistic regression to determine the impact of children's health insurance on the probability that the parents will seek medical care for themselves. The empirical specification can be written as follows:

$$Y = \propto_0 + \propto_1 n_{child} + \propto_2 Ipublic\_ins + \propto_3 Iprivate\_ins + \beta_1 \boldsymbol{X} + \beta_2 \boldsymbol{T} + \varepsilon \quad \text{- (1)},$$

where Y is a latent variable (i.e. whether the parents delay seeking health care when needed, and whether the parents had doctor office visits), n_{child} is the number of children in the household, I_{public_ins} is a dummy variable indicating whether all children are covered by Medicaid/SCHIP, $I_{private\_ins}$ is a dummy variable indicating whether all children are covered by private health[1] insurance, *singlemom* is a dummy variable indicating whether the parent is a single mother, $\boldsymbol{X}$ are the demographic characteristics including age, sex, race, education, health status, and health insurance status, $\boldsymbol{T}$ is a set of year dummy variables, and ε is the error term. In this regression, the parents whose children are uninsured are the base group, so the coefficients $\propto_2$and $\propto_3$ are interpreted in relation to this base group.

Endogeneity bias

In the second stage, we will use state eligibility rules for Medicaid and SCHIP to predict public health insurance coverage ($\widehat{Ipublic\_ins}$). Since the eligibility rule varies across states, this source of variation will overcome the endogenous problem and will result in an unbiased estimator.

Preliminary results

The preliminary results presented here are based on the analyses using the IHIS data (See Table 1 at the end of this abstract). The results from the first model shows that parents whose children are covered by Medicaid/SCHIP have 15 percent *higher* odds of not being to afford health care when needed compared with the parents whose children are uninsured. This result is rather surprising and could be interpreted as the parents delay seeking health care because they might not need it. In contrast, parents whose children are covered by private health insurance have 69 percent lower odds of not being to afford health care when needed compared with the parents whose children are uninsured. This result supports the hypothesis that, when children are insured, the parents can flex their budget constraints and are able to shift the economic resource to take care of their own health.

In addition, the results from the second model reveal that children's public health insurance has a positive impact on the parents' medical care utilization. More specifically, the odd ratios of health insurance variables indicate that the parents whose children are insured have higher odds of having doctor visits in the past 2 weeks. In particular, when compared with the parents whose children are uninsured, the parents whose children are covered by Medicaid/SCHIP have 9 percent higher odds of having visits to doctor offices in the past two

[1] Note: It is often the case that there are both uninsured and insured within the same household. To deal with this issue, we create a dummy variable for uninsured children and assigned value '1' if *at least* one child in the household was uninsured and assigned value '0' otherwise. Moreover, a dummy variable for children covered by Medicaid/SCHIP (or called 'public insurance) is created based on the condition that *all* children in the household are covered by Medicaid or SCHIP. A dummy variable for children covered by private health insurance is also created in a similar manner. Nevertheless, the pattern and the reason why there are both uninsured and insured children within the same family needs to be investigated further.

weeks, whereas the parents whose children are covered by private health insurance have 23 percent higher odds of having visits to doctor offices in the past two weeks. These results suggest that parents tend to seek more health care when their children are insured. Nevertheless, the magnitude of the impact differs across types of health insurance in that the parents of privately insured children are more likely to have visits to doctor offices when compared with the parents of publicly insured children.

Discussion and next steps

The preliminary results suggest that there are some associations between children's public health insurance and the parents' health seeking behavior. However, the estimates are biased due to the endogeneity problem, which will be addressed in the next step of this research. In addition, the channels through which children's public health insurance affects the parents' health care utilization will be examined in more details.

References

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Table 1: Children health insurance and parents' health seeking behavior

Variable	Model1 (Y=Needed but could not afford health care)		Model2 (Y=Had doctor-office visits in past 2 weeks)	
	Odd ratio	SE	Odd ratio	SE
Number of children	0.87***	(0.01)	0.91**	(0.01)
Children covered by Medicaid/SCHIP	1.15***	(0.05)	1.09**	(0.03)
Children covered by private health insurance	0.31***	(0.01)	1.23**	(0.03)
Single mother	1.57***	(0.06)	1.07**	(0.03)
Age group:				
Age 25-34	1.09	(0.06)	0.89**	(0.04)
Age 35-44	0.91	(0.05)	0.90**	(0.04)
Age 45-54	0.72***	(0.05)	1.05	(0.05)
Age 55+	0.61***	(0.06)	1.36**	(0.08)
Male	0.88***	(0.02)	0.53**	(0.01)
Race:				
Black/African American	0.74***	(0.03)	0.90**	(0.02)
American Indian	0.96	(0.10)	1.08	(0.08)
Asian or Pacific Islander	0.49***	(0.05)	0.72**	(0.03)
Other race	0.73***	(0.05)	0.87**	(0.04)
Multiple races	1.46*	(0.31)	1.09	(0.18)
Education:				
Less than high school	1.31*	(0.20)	1.07	(0.14)
High school diploma	1.25	(0.19)	1.36**	(0.19)
G.E.D./Vocational	1.59***	(0.24)	1.77**	(0.24)
Bachelor's degree	0.8	(0.13)	1.79**	(0.24)
Master's or higher	0.71**	(0.12)	1.98**	(0.27)
Perceived health status:				
Excellent	0.12***	(0.01)	0.11**	(0.01)
Very good	0.20***	(0.01)	0.14**	(0.01)
Good	0.33***	(0.02)	0.21**	(0.01)
Fair	0.68***	(0.04)	0.43**	(0.02)
Intercept	0.45***	(0.08)	0.89	(0.14)
Number of observations	168784		168606	

Note: *** p<0.01, ** p<0.05, * p<0.1
Source: Integrated Health Interview Survey, 1997-2006
Note: Standard errors are calculated using Taylor Series with Stata 10.