The Effects of Cost Sharing on Access to Care among Childless Adults

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Objectives. To analyze the impact of public health insurance expansions and the use of enrollee cost sharing on insurance status and receipt of clinically indicated preventive screenings and physician services.

Data Source. This study uses Behavioral Risk Factor Surveillance System (BRFSS) data from 1997 to 2007.

Study Design. This study uses multivariate difference-in-difference logistic regression modeling of pooled cross-sectional time series data. The effect of the expansions on insurance status and access to care is identified by cross-state variation in program implementation, as well as cross-state and within-state variation in program eligibility criteria over time.

Principal Findings. Childless adult expansions, regardless of cost-sharing levels, reduced uninsurance rates and decreased the likelihood that childless adults needed to see a physician but did not because of cost. Expansions with traditional public insurance cost-sharing requirements increased the use of preventive screenings, while expansions with increased cost-sharing requirements did not.

Conclusions. Cost-sharing requirements did not have an impact on the ability to see a physician when needed, but they played an important role in the utilization of preventive services. Expanding public health insurance to low-income, childless adults presents a promising policy opportunity, but there are trade-offs between the efficiencies obtained through increased cost sharing and the potential inefficiencies due to the lower use of preventive services.

Key Words. Access to care, health insurance, cost sharing

Health insurance is an important enabling factor in providing access to physician services and preventive care. Many low-income individuals rely on public insurance programs as an important source of coverage. However, such coverage is generally limited to children, their parents, pregnant women, and the disabled, thus leaving many adults without children ineligible for public coverage regardless of their income. In 2007, 46 percent of childless adults with incomes below the federal poverty level and 37 percent of those between

one and two times the federal poverty level were without health insurance coverage (Hoffman et al. 2008). Lack of health insurance results in worse health outcomes, because the uninsured receive less preventive care, are diagnosed at more advanced disease stages, receive less comprehensive care, and have higher mortality rates (Coleman et al. 2002).

In recent years, changes in federal policy provided states with more opportunities to expand public insurance coverage to adults. States could expand coverage to adults through 1115 waivers and Health Insurance Flexibility and Accountability (HIFA) waivers (Coughlin et al. 2006). These waivers allowed states to test and evaluate innovative health insurance approaches. Additionally, states can pursue expansions without a federal Medicaid waiver if they bear the full cost of the expansions. Given the flexibility states have in increasing cost sharing through premiums, copayments, and deductibles, a number of states have enacted adult programs with leaner benefit packages, requiring significantly more cost sharing than the state's Medicaid program. Findings from the RAND Health Insurance Experiment show that enrollee cost sharing reduced the use of both highly effective and less effective health services, with generally no adverse effects on health status except those at high risk, particularly among the low income (Newhouse et al. 1993). Cost-sharing requirements could lead to barriers in accessing physician services and preventive health screenings, particularly among low-income individuals, because they have very limited resources to devote to health care. Thus, it is important to examine how cost-sharing requirements impact insurance coverage and access to care among low-income childless adults eligible for public health insurance expansions.

In this paper, data from the Behavioral Risk Factor Surveillance System (BRFSS) from 1997 to 2007 is used to analyze the impact of state public health insurance expansions on health insurance status and access to care of low-income childless adults. This study not only examines the impact of insurance expansions on uninsurance rates but goes one step further and examines the impact of these expansions on the receipt of clinically indicated preventive screenings and access to physician services. This paper also provides an analysis of the impact of insurance generosity on access to care by examining the association between cost-sharing levels and access to physician services and preventive screenings. On the eve of health care reform, which will expand

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Medicaid to individuals up to 133 percent of the federal poverty level, including childless adults, this work provides important insights into the effect of public health insurance expansions on the low-income childless adult population.

BACKGROUND

While a number of studies have examined the impact of public health insurance on access to health care, most treat public health insurance as a yes/no dichotomous variable, implicitly assuming that all public coverage provides equal access to care. Several studies show that Medicaid enrollees are more likely than the uninsured to have a usual source of care, a higher number of ambulatory care visits, and higher rates of hospital use (Wilensky and Berk 1982; Rosenbach 1989; Freeman and Corey 1993; Marquis and Long 1996; Berk and Schur 1998; Long, Coughlin, and King 2005). Busch and Duchovny (2005) found that Medicaid expansions to parents led to increased cancer screening rates and reduced the likelihood that parents reported forgoing needed medical care due to costs.

When compared with private coverage, many studies find that Medicaid provides superior coverage for its target population due to the lower cost-sharing requirements. Low-income adults with private coverage tend to face deductibles, copayments, and limited coverage for some services, all of which may present barriers to access. Rosenbach (1989) found that Medicaid children were more likely to visit an office-based physician than children covered under private insurance. Hahn (1994) found that if individuals currently covered through Medicaid were given private coverage, utilization would decrease. Freeman and Corey (1993) demonstrated that low-income nonelderly covered by Medicaid had more ambulatory visits and hospital care than those with private insurance, potentially due to the economic barriers to access imposed by cost sharing in private insurance.

Evidence from the literature highlights the importance of examining the impact cost sharing has on access to health care services. The RAND Health Insurance Experiment provides strong evidence that higher cost sharing leads to a reduction in medical care use, particularly among the low-income population. Individuals with a 20 percent coinsurance rate had 25–30 percent less inpatient and ambulatory care than those without cost-sharing requirements (Newhouse et al. 1993). Studies examining the use of preventive services found that higher cost sharing was associated with lower use of

preventive services such as mammograms and Papanicolaou (Pap) tests (Blustein 1995; Solanki and Schauffler 1999; Ayanian et al. 2000). Trivedi, Rakowski, and Ayanian (2008) find that that biennial mammogram screening rates were 8 percentage points lower in Medicare cost-sharing plans when compared with plans offering full coverage.

A small number of studies have examined the impact of increased cost sharing on an enrollee's ability to access care within the public health insurance system. Increased cost sharing under Oregon's Medicaid program led to higher rates of unmet medical need and disenrollment from the program (Wright et al. 2005). Those disenrolling from the program due to increased cost sharing reported inferior access to needed care, lower use of primary care, and increased use of emergency rooms compared with those disenrolling for other reasons. Analysis of the effects of new copayments in Utah's Medicaid program provides mixed results. Early analysis suggested that copayments did not have an impact on utilization for most services (Williams 2003). However, a subsequent analysis found that copayments led to decreased utilization of services such as hospital admissions and physician visits (Ku, Deschamps, and Hilman 2004). These findings highlight the importance of understanding the impact of cost sharing on access to medical care for the low-income population.

This study adds to the literature by examining the impact of health insurance expansions on insurance status and access to care among childless adults, a population seldomly examined. When examining the effect of insurance expansions, it is important to treat insurance as a heterogeneous good, because differences in the type of coverage and required cost-sharing levels are likely to result in differences in utilization (Buchmueller et al. 2005). Unlike many previous studies, this study accounts for the variation in cost-sharing requirements, allowing for an examination of the relationship between these important characteristics of coverage and access to physician services and preventive care.

METHODS

Data

The primary source of data for this study is the BRFSS from 1997 to 2007. The BRFSS is a cross-sectional telephone survey of adults designed and funded by the Centers for Disease Control and Prevention and conducted at the state level. The advantages of the BRFSS for this analysis are that it contains

information on family structure, household income, and state identifiers — information necessary for imputing expansion program eligibility. Additionally, the BRFSS includes characteristics likely to affect access to and utilization of health services (e.g., age, education, health status). Previous studies have indicated an inability to control for the presence of chronic illness as a limitation of their study (Coughlin, Long, and Yu-Chu 2005). With the BRFSS, it is possible to control for chronic conditions because respondents are asked whether they have been diagnosed with several chronic conditions by a physician. For this analysis the study sample is limited to adults ages 19–64. Individuals age 65 and above and pregnant women are excluded due to their potential eligibility for other public insurance programs.

Data from the Area Resource File is used to control for county-level enabling/impeding variables, such as provider supply and the availability of a health care safety net, because these factors are likely to influence beneficiaries' access to care. Low physician reimbursement rates have affected physician participation rates in the Medicaid program, potentially making it difficult for an enrollee to find a participating provider (Perloff, Kletke, and Neckerman 1987; Cohen and Cunningham 1995; Cunningham and Nichols 2005). To control for Medicaid reimbursement levels, Medicaid-to-Medicare fee ratios by state from the published literature were used (Norton and Zuckerman 2000; Menges et al. 2001; Zuckerman et al. 2004). When examining the receipt of female cancer screening services, the availability of the state's National Breast and Cervical Cancer Early Detection Program is controlled for, as it provides access to screenings and diagnostic services (Adams et al. 2003). State-level economic data were obtained from the U.S. Bureau of Labor Statistics and the U.S. Bureau of Economic Analysis, and Medicaid managed care data were obtained from the Centers for Medicare and Medicaid Services.

A variety of access indicators are used as dependent variables in this analysis. Three of the dependent variables are measures of the ability to receive clinically indicated preventive services. These variables are dichotomous variables indicating whether the individual received age-appropriate recommended preventive health screenings. These preventive services include a self-reported breast cancer screening with mammography within the past year for women aged 40–64 years, a self-reported cervical cancer screening with a Pap test within the past year for women aged 19–64 years with an intact uterus, and a self-reported cholesterol screening within the past 5 years for men aged 35–64 and women aged 45–64. Self-reported screening data have been shown to be highly correlated with medical chart audits (Montano and Phillips 1995). To examine access to physician services, responses from

the following questions are examined: “Was there a time in the past 12 months when you needed to see a doctor but could not because of cost?” and “Do you have one person you think of as your personal doctor or health care provider?” Given the nature of the data being used for this analysis, there are some years in which a dependent variable is unavailable. In such instances, the analysis is carried out only on the available years for a given dependent variable.

Target Population

State programs included in the analysis are identified in Table 1. Table 1 shows considerable variation in eligibility over time and across expansion states. These sources of variation are important in identifying the effect of the expansions. For this analysis two groups of programs were identified based on cost-sharing requirements: those with traditional public insurance cost-sharing requirements and those with increased cost-sharing requirements. Traditional public insurance cost-sharing programs are defined as those with copayment requirements similar to the Medicaid program, ranging from U.S.\$0 to U.S.\$3

Table 1: Summary of Childless Adult Health Insurance Expansions

<i>State Program</i>	<i>Year Implemented</i>	<i>Eligibility as a % of FPL</i>	<i>Cost-Sharing Level</i>
Arizona HIFA	2001	≤ 100% FPL	Traditional
District of Columbia Healthcare Alliance Program	2001	≤ 200% FPL	Traditional
IowaCare	2005	≤ 200% FPL	Traditional
MaineCare for Childless Adults	2002	≤ 100% FPL	Traditional
Maine Dirigo Choice	2005	≤ 300% FPL	Traditional/increased*
Maryland Primary Adult Care Program	2006	≤ 116% FPL	Traditional
New Mexico State Coverage Insurance	2005	≤ 200% FPL	Traditional/increased [†]
New York Family Health Plus	2001	≤ 100% FPL	Increased
Insure Oklahoma	2005	≤ 200% FPL	Increased
Oregon Family Health Insurance Assistance Program	1998	≤ 185% FPL	Increased
Pennsylvania adultBasic	2002	≤ 200% FPL	Increased
Utah Primary Care Network	2002	≤ 150% FPL	Increased

Notes. Program eligibility and benefits determined using Centers for Medicare and Medicaid Services (CMS) fact sheets, state coverage initiatives (SCIs), and program websites.

*Traditional cost sharing for preventive care; increased cost sharing for physician services.

[†]Individuals over 100% of the federal poverty level (FPL) face increased cost sharing (except for preventive care).

HIFA, Health Insurance Flexibility and Accountability.

per visit. Increased cost-sharing expansion programs are defined as those with copayments above the traditional Medicaid level, ranging from U.S.\$5 to U.S.\$25. While the classification of cost-sharing programs does not directly take into account the use of premiums, many of the expansion programs with premium requirements also have increased cost-sharing requirements; in fact, when attempting to control for programs with premiums, the premium variable was found to be collinear with increased cost sharing. For states that use different levels of cost sharing by income category, cost-sharing determination is made at the individual level. In models examining the effect of the expansions on having no cost barriers when seeking care and the probability of having a personal doctor, the copayment for a physician office visit is used to define the level of cost sharing, while in models examining the receipt of preventive screenings the copayment for preventive care is used.

Multivariate Analysis

This analysis is based on a standard economic model in which access to and utilization of health care services is a function of individual demographic and social characteristics, individual health status, economic conditions, and health care system characteristics (Andersen and Aday 1978; Newhouse et al. 1993). Eligibility for childless adult insurance expansions is determined using both income and categorical requirements. Eligible adults must meet categorical requirements (age 19–64, without a child in the household) and have a reported household income below the eligibility threshold. The income variable in the BRFSS is coded as one of eight ordered categories, leaving approximately 9 percent of the sample in income categories where program eligibility cannot be precisely determined. Because of the inability to determine program eligibility for these childless adults, they are excluded from the analysis.

When examining the effect of insurance expansions on receipt of preventive care and access to physician services, it is important to consider the possibility of biased estimates due to self-selection and unobserved heterogeneity. Even with a rich set of explanatory variables in the model, unobserved heterogeneity may be an issue if insurance is treated as exogenous. Differences in outcomes will reflect a combination of the causal effect of insurance and the effect of unmeasured characteristics that are correlated with insurance coverage. This problem can be mitigated through the use of a control group (Buchmueller et al. 2005). With difference-in-difference modeling, changes in the outcomes from the control group are subtracted from those of the

treatment group, controlling for any group-specific and time-specific effects that may have affected access to health care during the study years (Wooldridge 2002). The treatment group includes childless adults eligible for the public insurance coverage expansions, while the control group consists of near eligible childless adults below 300 percent of the federal poverty level in expansion states. An advantage of this approach is that it provides a within-state control for other factors affecting these groups that may have changed in the absence of the insurance expansions. In addition to the use of a control group, a rich set of covariates are used to account for different characteristics between the treatment and control groups across the study period. Insurance status and access to care are a function of the individual's eligibility for coverage, demographic and social characteristics, health status, and local area characteristics. The models have the following specification:

$$\begin{aligned}\text{Insurance}_{ijt} &= \beta_0 + \beta_1 \text{Post}_{ijt} + \beta_2 \text{ICSEligible}_{ij} + \beta_3 \text{Post}^* \text{ICSEligible}_{ijt} + \beta_4 \text{TCSEligible}_{ij} \\ &\quad + \beta_5 \text{Post}^* \text{TCSEligible}_{ijt} + \beta_6 \mathbf{X}_{ijt} + \gamma \text{State}_j + \theta \text{Year}_t + \varepsilon_{ijt} \\ \text{Access}_{ijt} &= \beta_0 + \beta_1 \text{Post}_{ijt} + \beta_2 \text{ICSEligible}_{ij} + \beta_3 \text{Post}^* \text{ICSEligible}_{ijt} + \beta_4 \text{TCSEligible}_{ij} \\ &\quad + \beta_5 \text{Post}^* \text{TCSEligible}_{ijt} + \beta_6 \mathbf{X}_{ijt} + \gamma \text{State}_j + \theta \text{Year}_t + \varepsilon_{ijt}\end{aligned}$$

where the subscripts i , j , and t stand for the i th individual in the j th state in the t th time period. Insurance_{ijt} is a dichotomous variable indicating health insurance status, and Access_{ijt} is dichotomous variable indicating one of the access measures. $\mathbf{X}_{ijt}$ is a vector of personal characteristics common to the Insurance and Access equations including: age, gender, race/ethnicity, educational attainment, marital status, employment status, and health status. Using the survey date to determine whether the observation is in the pre- versus postexpansion period, Post_{ijt} is an indicator for whether the observation is in the postexpansion period. ICSEligible_{ij} and TCSEligible_{ij} are indicators for whether the childless adult was eligible for an expansion with increased cost-sharing requirements or an expansion with traditional cost-sharing requirements using the state expansion eligibility criteria. The difference-in-difference effect is secured through the interaction of the time difference (pre/post) and the group difference (treatment/control). The variable $\text{Post}^* \text{ICSEligible}_{ijt}$ indicates the effect of programs with increased cost-sharing requirements, while $\text{Post}^* \text{TCSEligible}_{ijt}$ indicates the effect of programs with traditional cost-sharing requirements. State and year fixed effects are also included to capture permanent time invariant differences in state characteristics and overall trends in health insurance coverage and access to care. The models are identified by variation in eligibility across several dimensions,

cross-state variation in the timing of the expansion implementation, as well as cross-state and within-state variation over time in the income eligibility criteria for the expansion programs.

The estimation approach will not produce unbiased estimates if state decisions concerning health insurance expansions were based on anticipated state-specific trends in insurance coverage. For example, at the time of implementation states expecting strong economic growth may provide more generous expansions than states with weaker expected growth. Because the effect of the expansions is identified by state/year eligibility levels, state and year interactions cannot be used to mitigate potential policy endogeneity. To address the potential problem of policy endogeneity, several policy-relevant variables that vary across state and over time are included in the models, including: unemployment rates in years t and $t - 1$, per capita income in years t and $t - 1$, and rates of Medicaid managed care. These variables should capture the effect of potentially confounding state-specific trends. Additionally, standard errors are corrected for clustering at the state level.

All models were run in *Stata* version 10.1. The marginal effects of each of the explanatory variables on the dependent variable are reported. The marginal effect of each explanatory variable on the given measure of access can be interpreted as the percentage point change in the probability associated with a one unit change in the explanatory variables. In nonlinear models the magnitude of the interaction effect does not equal the marginal effect (Ai and Norton 2003). Thus, the *inteff* command in *Stata* is used to compute the mean marginal effects and significance level of the interaction terms in the models (Norton, Wang, and Ai 2004).

RESULTS

Descriptive statistics on insurance coverage, access measures, and demographic characteristics are shown in Table 2. The first column includes childless adults eligible for an insurance expansion with traditional public insurance cost-sharing requirements; the second column includes childless adults eligible for expansions with increased cost-sharing requirements, while the third column includes characteristics of the control group. As expected, insurance rates, access measures, and preventive screening utilization are lower among childless adults eligible for the public health insurance expansions as compared with the control group.

Table 2: Descriptive Statistics of Childless Adult Sample

<i>Variable</i>	<i>Traditional Cost-Sharing Program Eligible*</i>	<i>Increased Cost-Sharing Program Eligible[†]</i>	<i>Near Eligible</i>
Insured	68.80	66.08	81.74
No barriers due to cost	74.80	72.24	83.80
Personal doctor	72.99	74.94	80.60
Mammogram	53.30	47.59	57.21
Pap test	60.32	53.78	63.97
Cholesterol screening	74.52	75.21	80.44
Income			
10,000–14,999	23.00	29.13	3.35
15,000–19,999	20.56	20.79	5.32
20,000–24,999	18.10	14.23	17.61
25,000–34,999	7.61	2.00	35.74
35,000+	0.92	0.04	33.47
Age			
19–34	23.93	24.96	21.87
35–49	26.15	26.06	24.39
50–64	49.91	48.97	53.74
Female	57.93	58.92	57.96
Black	10.10	8.59	7.95
Hispanic	10.82	6.61	8.34
Other race	5.26	6.65	6.47
Household size	1.86	1.98	1.79
High school graduate	39.75	42.50	36.48
Some college	27.47	27.40	31.03
College graduate	17.17	13.39	24.58
Married	26.79	26.77	43.29
Health status			
Excellent/very good	38.56	33.25	49.41
Fair/poor	29.68	35.92	19.07
One or more chronic conditions	34.85	34.39	32.33
Worker	42.84	38.89	54.57
Self-employed worker	11.59	8.34	8.25
Student	6.79	6.80	4.01
Number of observations	12,346	11,629	51,576

*Traditional public insurance cost-sharing programs are defined as those with co-payment requirements similar to the Medicaid program, ranging from \$0 to \$3.

[†]Increased cost-sharing expansion programs are defined as those with co-payments above the traditional Medicaid level, ranging from \$5 to \$25.

Pap, Papanicolaou.

Source: Author's tabulations of the 1997–2007 Behavioral Risk Factor Surveillance System (BRFSS) data.

Table 3 displays the results for the logistic regression models examining the effect of the expansions on insurance status and access to physician services. This table not only presents the marginal effects of the main variables of

Table 3: The Marginal Effect of Expansion Program Eligibility on Insurance Status and Access to Physician Services

	<i>Insured</i>	<i>Insured (Females Only)</i>	<i>No Cost Barriers[†]</i>	<i>Personal Doctor[†]</i>
Post	-0.012 (0.008)	-0.014 (0.007)**	-0.010 (0.007)	0.009 (0.013)
ICS Eligible	-0.048 (0.008)***	-0.039 (0.011)***	-0.016 (0.008)**	-0.012 (0.007)*
Post*ICS Eligible	0.021 (0.004)***	0.022 (0.007)***	0.022 (0.012)*	0.001 (0.006)
TCS Eligible	-0.048 (0.022)**	-0.053 (0.026)**	-0.005 (0.015)	0.015 (0.012)
Post*TCS Eligible	0.039 (0.015)***	0.051 (0.027)*	0.028 (0.010)***	-0.005 (0.006)
Income				
10,000-14,999	-0.028 (0.009)***	-0.039 (0.009)***	-0.010 (0.009)	-0.007 (0.006)
15,000-19,999	-0.005 (0.010)	0.002 (0.007)	0.004 (0.006)	0.008 (0.007)
20,000-24,999	0.038 (0.011)***	0.046 (0.009)***	0.046 (0.011)***	0.041 (0.008)***
25,000-34,999	0.116 (0.009)***	0.121 (0.006)***	0.109 (0.011)***	0.083 (0.006)***
35,000+	0.172 (0.011)***	0.171 (0.009)***	0.151 (0.012)***	0.115 (0.010)***
Age				
35-49	0.022 (0.006)***	0.014 (0.007)*	-0.007 (0.005)	0.066 (0.004)***
50-64	0.089 (0.007)***	0.077 (0.008)***	0.064 (0.008)***	0.133 (0.007)***
Female	0.032 (0.009)***		-0.046 (0.007)***	0.105 (0.007)***
Black	-0.029 (0.010)***	-0.038 (0.011)***	0.008 (0.010)	-0.014 (0.011)
Hispanic	-0.048 (0.016)***	-0.042 (0.014)***	-0.012 (0.008)	-0.035 (0.018)*
Other race	-0.021 (0.013)	-0.028 (0.014)**	0.003 (0.013)	-0.041 (0.007)***
Household size	-0.019 (0.004)***	-0.020 (0.004)***	-0.014 (0.003)***	-0.004 (0.003)
High school graduate	0.055 (0.007)***	0.047 (0.006)***	0.029 (0.005)***	0.042 (0.008)***
Some college	0.082 (0.008)***	0.068 (0.007)***	0.009 (0.005)*	0.057 (0.008)***
College graduate	0.096 (0.007)***	0.085 (0.007)***	0.008 (0.008)	0.047 (0.010)***
Married	0.029 (0.007)***	-0.005 (0.007)	0.005 (0.006)	0.024 (0.004)***
Health status				
Excellent/very good	0.016 (0.004)***	0.010 (0.004)**	0.065 (0.003)***	-0.006 (0.004)
Fair/poor	0.040 (0.007)***	0.039 (0.007)***	-0.059 (0.007)***	0.044 (0.004)***

continued

Table 3. Continued

	Insured	Insured (Females Only)	No Cost Barriers [‡]	Personal Doctor [‡]
Chronic condition	0.062 (0.005)***	0.048 (0.005)***	0.007 (0.002)***	0.118 (0.004)***
Worker	0.016 (0.009)*	0.017 (0.010)*	-0.005 (0.005)	-0.031 (0.005)***
Self-employed worker	-0.214 (0.011)***	-0.196 (0.009)***	-0.090 (0.007)***	-0.113 (0.011)***
Student	0.051 (0.013)***	0.044 (0.009)***	0.052 (0.009)***	-0.028 (0.007)***
Physicians per 1,000	0.002 (0.002)	0.004 (0.002)**	-0.002 (0.001)	-0.004 (0.001)***
Number of FQHCs	-0.001 (0.001)	-0.001 (0.000)	0.000 (0.000)	-0.002 (0.000)***
Medicaid-to-Medicare fee ratio	-0.004 (0.033)	-0.009 (0.048)	0.052 (0.055)	0.184 (0.111)*
Metro	0.020 (0.008)**	0.020 (0.010)**	0.002 (0.006)	0.011 (0.010)
Urban	-0.004 (0.008)	-0.005 (0.007)	-0.001 (0.006)	0.003 (0.010)
Rural	-0.012 (0.011)	-0.012 (0.023)	-0.015 (0.020)	-0.006 (0.029)

Note. All regressions include state and year dummies, state unemployment rate in years t and $t-1$, state per capita income in years t and $t-1$, and state Medicaid managed care rates. Standard errors are corrected for clustering at the state level. Boldface indicates marginal effects.

*Significant at $p < .10$.

**Significant at $p < .05$.

***Significant at $p < .01$.

[†]BRFSS data available for 1997–2000, 2003–2007.

[‡]BRFSS data available for 2001–2007.

BRFSS, Behavioral Risk Factor Surveillance System.

interest but also for several covariates included in the models. Results from the logistic regression models estimating the effect of program eligibility by cost-sharing level on the probability of insurance are presented in the first two columns. Childless adults eligible for expansion programs with increased cost-sharing requirements had a 2.1 percentage point increase in the probability of being insured, while those eligible for programs with traditional cost sharing had a 3.9 percentage point increase. Additionally, the effect of the expansions on insurance status was estimated separately for women, because two of the access measures are limited to an all-female sample. Childless adult females eligible for expansion programs with increased cost-sharing requirements had a 2.2 percentage point increase in the probability of being insured, while those eligible for programs with traditional cost sharing had a 5.1 percentage point increase. Covariate estimates are presented for several of the covariates included in the models and are in the expected direction, for example, individuals with higher incomes, higher educational levels, and workers are more likely to be insured.

The third column presents the results of the eligibility expansions by cost-sharing requirements on the probability of having no cost barriers when seeking care from a doctor. Both traditional cost-sharing programs and increased cost-sharing programs significantly increase the likelihood of having no financial barriers to medical care. Each 10 percentage point increase in eligibility for programs with increased cost-sharing requirements results in a 0.22 percentage point increase in the likelihood one did not forgo needed care due to cost. In programs with traditional cost-sharing requirements, each 10 percentage point increase in eligibility results in a 0.28 percentage point increase in the probability of not forgoing needed care due to cost. As shown in the last two columns of the table, the expansions regardless of cost-sharing requirements had no impact on the probability of having a personal doctor.

Unlike access to physician services, cost-sharing levels seem to play an important role in the utilization of preventive health screenings (Table 4). Estimates indicate that each 10 percentage point increase in eligibility for programs with traditional cost-sharing requirements results in a 0.41 percentage point increase in mammography screening rates among childless adults. Among programs with increased cost-sharing requirements, no statistically significant increase in mammography screening rates were found. Similar results are found when examining the use of recommended cervical cancer screenings, as shown in the second column. Estimates indicate that each 10 percentage point increase in eligibility for programs with traditional cost-sharing results in a 0.30 percentage point increase in Pap test screening rates,

Table 4: The Marginal Effect of Expansion Program Eligibility on Access to Preventive Services

	<i>Mammogram</i> [†]	<i>Pap Test</i> [†]	<i>Cholesterol Screening</i> [†]
Post	- 0.020 (0.014)	- 0.017 (0.020)	0.023 (0.009)***
ICS eligible	0.003 (0.013)	0.001 (0.022)	0.001 (0.014)
Post*ICS eligible	- 0.011 (0.013)	0.030 (0.022)	0.004 (0.008)
TCS eligible	- 0.012 (0.030)	0.003 (0.012)	- 0.029 (0.012)**
Post*TCS eligible	0.041 (0.023)*	0.030 (0.017)*	0.022 (0.010)**
Income			
10,000–14,999	- 0.016 (0.014)	0.011 (0.014)	0.015 (0.008)*
15,000–19,999	- 0.000 (0.011)	0.037 (0.015)**	0.036 (0.009)***
20,000–24,999	0.057 (0.008)***	0.061 (0.009)***	0.048 (0.014)***
25,000–34,999	0.110 (0.020)***	0.108 (0.017)***	0.085 (0.014)***
35,000+	0.165 (0.023)***	0.140 (0.016)***	0.114 (0.017)***
Age			
35–49	(ref)	- 0.090 (0.012)***	(ref)
50–64	0.130 (0.006)***	- 0.096 (0.013)***	0.073 (0.006)***
Female			0.066 (0.007)***
Black	0.095 (0.013)***	0.064 (0.008)***	- 0.005 (0.007)
Hispanic	0.076 (0.018)***	0.054 (0.013)***	- 0.007 (0.013)
Other race	0.042 (0.036)	- 0.010 (0.039)	0.005 (0.015)
Household size	- 0.035 (0.006)***	- 0.035 (0.009)***	- 0.005 (0.004)
High school graduate	0.042 (0.014)***	0.035 (0.017)**	0.036 (0.007)***
Some college	0.038 (0.015)**	0.052 (0.015)***	0.067 (0.006)***
College graduate	0.068 (0.021)***	0.075 (0.022)***	0.077 (0.007)***
Married	0.047 (0.008)***	0.059 (0.014)***	0.027 (0.006)***
Health status			
Excellent/very good	0.004 (0.007)	0.017 (0.012)	0.016 (0.007)**
Fair/poor	- 0.010 (0.010)	- 0.008 (0.012)	0.028 (0.005)***
Chronic condition	0.056 (0.012)***	0.037 (0.019)**	0.241 (0.007)***
Worker	- 0.034 (0.005)***	0.017 (0.010)*	- 0.025 (0.004)***
Self-employed worker	- 0.103 (0.018)***	- 0.059 (0.017)***	- 0.079 (0.005)***
Student	- 0.060 (0.045)	0.002 (0.020)	0.010 (0.032)
Physicians per 1,000	0.002 (0.004)	0.004 (0.003)	0.005 (0.002)**
Number of FQHCs	0.000 (0.001)	- 0.000 (0.001)	- 0.001 (0.001)
Age of NBCCEDP	- 0.001 (0.004)	- 0.014 (0.005)***	
Medicaid-to-Medicare fee ratio	0.151 (0.056)***	0.207 (0.063)***	- 0.035 (0.088)
Metro	0.024 (0.015)	0.026 (0.018)	0.024 (0.006)***
Urban	0.016 (0.016)	0.025 (0.013)*	0.004 (0.006)
Rural	0.009 (0.018)	0.077 (0.035)**	0.022 (0.017)

Note. All regressions include state and year dummies, state unemployment rate in years t and $t - 1$, state per capita income in years t and $t - 1$ and state Medicaid managed care rates. Standard errors are corrected for clustering at the state level. Boldface indicates marginal effects.

*Significant at $p < .10$.

**Significant at $p < .05$.

***Significant at $p < .01$.

[†]BRFSS data available for 1997–2000, 2002, 2004, 2006.

[‡]BRFSS data available for 1997, 1999, 2001, 2003, 2005, 2007.

BRFSS, Behavioral Risk Factor Surveillance System; FQHC, federally qualified health center; NBCCEDP, National Breast and Cervical Cancer Early Detection Program; Pap, Papanicolaou.

while no statistically significant increase is found among those eligible for programs with increased cost-sharing requirements. For cholesterol screening among men and women, each 10 percentage point increase in eligibility for programs with traditional cost-sharing requirements results in a 0.22 percentage point increase in cholesterol screening rates, with no statistically significant increase among those eligible for programs with increased cost-sharing levels, as shown in the last column. In each of these models covariate estimates are presented for several of the covariates included in the model and are in the expected direction. For example, married adults, those with higher income, and those with more education had higher probabilities of preventive service use.

LIMITATIONS

While this study provides valuable insight into the effect of insurance expansions among childless adults, it is also subject to certain limitations. First, this study only includes childless adults, and the results are not likely generalizable to the population as a whole. In addition, the use of BRFSS data complicates the ability to accurately determine program eligibility. Childless adults are identified by not reporting a child living in their household, rather than having their “own” child, potentially leading to a misclassification of some childless adults. Additionally, due to data limitations, program eligibility was determined only through changes in income eligibility, not taking into account asset test requirements in four of the programs. However, results were robust when excluding programs with asset tests from the analysis.

Another issue is that difference-in-difference analysis can be substantially affected by the choice of control group (Marquis and Long 2003). To test the robustness of the results, multiple control groups were employed. For example, the same analysis as presented here was conducted using a control group of low-income childless adults in states without childless adult insurance expansions and results were robust. However, the ability to restrict the income range of the control group is limited due to sample size restraints in the BRFSS. For example, in two of the models when the control group is narrowed, the point estimates remain the same but the standard errors increase, resulting in statistically insignificant findings. Lastly, it is possible that the methods used do not adequately address the endogeneity of insurance coverage. To further examine the endogeneity of insurance coverage, additional models were estimated using a two-stage approach accounting for the potential endogeneity of insurance. Results from the two-stage modeling approach were robust.

DISCUSSION

This study exploited the time variation in expansion program implementation and state variation in eligibility levels to assess the impact of childless adult health insurance expansions on insurance status and access to care. Results indicate that childless adult expansion programs resulted in significant gains in insurance coverage regardless of cost-sharing requirements. However, cost-sharing requirements were found to play an important role in providing access to preventive health screenings. The results indicate that the expansions had no impact on the likelihood of having a personal doctor or health care provider regardless of the cost-sharing requirement. Additionally, the cost-sharing level does not impact the likelihood of forgoing needed medical care due to costs, as both types of programs increase the probability that no financial barriers prevent eligible adults from seeking needed medical care.

These results indicate that eligible childless adults experience improved access to care during disease episodes regardless of the cost-sharing levels. While cost-sharing levels do not have an impact on having a personal doctor or removing barriers to care due to cost, cost-sharing plays an important role in providing access to recommended preventive health screenings. The use of preventive health screenings significantly increased among childless adults eligible for programs with traditional cost-sharing levels. In programs with increased cost sharing, there were either gains in screening utilization that were not statistically significant or no change that could be measured with the used methods.

States may implement increased cost-sharing requirements for a variety of reasons. Increased cost-sharing requirements have financial implications for states as they reduce the public outlay of the program by placing more of the financial burden on enrollees, and can help reduce the use of unnecessary medical services. Increased cost sharing in public insurance programs can also be used as a mechanism to reduce private insurance crowd-out by deterring those eligible from dropping their private insurance and joining public programs. Future studies need to address how various levels of cost sharing are impacting overall program costs and the extent of private insurance crowd-out.

If the goal of public health insurance expansions is to increase access to care when needed, then both types of programs are accomplishing that mission. However, if the goal of public health insurance expansions is to also increase the use of preventive services, then it appears that only those with traditional public insurance cost-sharing requirements will help achieve that

goal. As shown, insurance expansions with traditional Medicaid cost-sharing requirements appear to lead to an increased use of preventive health screenings, which in turn could positively impact the rate of early detection of disease and lead to more treatment options and better outcomes among those enrolled. Increased cost-sharing requirements may not allow newly expanded insurance coverage to increase the use of clinically indicated preventive services. Failure to receive such services may result in later stage diagnosis and higher treatment costs over time.

The magnitude of the effects on insurance status and access to care found in this study are modest but similar in magnitude to other studies in the literature examining the effect of public health insurance expansions for adults (Kronick and Gilmer 2002; Aizer and Grogger 2003; Busch and Duchovny 2005). The magnitude of the effects found in this study may be small for several reasons; the availability of charity care has been shown to reduce the demand for health insurance and increase the likelihood of being uninsured, especially among the low-income population (Rask and Rask 2000; Herring 2005). Additionally, information and administrative costs, along with the perceived stigma and reputation of public insurance have been shown to be important barriers to enrollment in public insurance programs (Aizer 2007; Ketsche et al. 2007).

While the results of this analysis demonstrate that adult health insurance expansions have led to increases in insurance coverage and access to care, much work is left to be done. With recent passage of the Patient Protection and Affordable Care Act (PPACA), Medicaid will be expanded to all citizens, including childless adults, up to 133 percent of the federal poverty level. Additionally, those between 133 and 400 percent of the federal poverty level will be eligible for subsidies to purchase coverage through insurance exchanges. The findings here indicate that expanding health insurance to low-income childless adults presents a promising opportunity to not only increase insurance rates but also to improve access to care. The elimination of cost-sharing requirements for recommended preventive services has the potential to significantly increase the utilization of preventive health services among the newly insured population. However, in order to achieve the large reductions in the number of uninsured as anticipated under PPACA, the expansions must be carefully designed and implemented in an effort to limit enrollment barriers. It is clear that more work needs to be done to better understand these barriers and the role they will play under PPACA. Additionally, it will be important to understand whether the individual insurance mandate, and the related financial penalty for remaining uninsured, helps lead to the magnitude of increases anticipated.

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