Public–Private Substitution Among Medicaid Adults: Evidence From Ohio

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Objective: To estimate substitution from private insurance to public coverage among adult Medicaid enrollees.

Data Sources: 2004 and 2008 Ohio Family Health Surveys (OFHS)

Study Design: Substitution is estimated from respondents' self-reported current insurance coverage and coverage prior to Medicaid enrollment. A linear probability model estimates the association between prior private coverage and respondent characteristics.

Data Collection/Extraction Methods: Random digit dialing telephone survey of 50,944 Ohio residents in 2008–2009 and 39,953 in 2003–2004.

Principal Findings: Few adult Medicaid enrollees in Ohio voluntarily replace their private coverage with Medicaid. In 2008, only 2.9% of new Medicaid adults voluntarily substituted public for private coverage (4.6% in 2004). Of these 2.9% who voluntarily substituted from private to public coverage, 38% reported that they could not afford their employer sponsored plan. The multivariate results for all private to Medicaid transitions find few significant differences, other than income, in the probability of transition.

Conclusions: Few transitions from private coverage to Medicaid are voluntary, and substitution is a minor issue among current Ohio Medicaid adults.

The recent passage of the Patient Protection and Affordable Care Act (ACA) raises new questions about how public coverage substitutes for private health insurance. While previous expansions of Medicaid and the State Children Health Insurance Program (CHIP) focused on children and pregnant women, childless adults and parents above the poverty line have never been a primary target for a large Medicaid expansion. Medicaid administrators are routinely asked by legislators about the scope of public insurance substituting for private coverage. While many studies examine crowd-out and substitution for children, the published literature provides little guidance on substitution among adult Medicaid beneficiaries.

With the ACA's scheduled expansion of Medicaid, in 2014, to cover more of the adult population, concerns with substitution will only grow as implementation progresses. Currently, adult eligibility for Medicaid is limited, but the ACA expands Medicaid eligibility for both parents and childless adults living in households with incomes below 133% of the Federal Poverty Level (FPL), or 138% when the 5% forgiveness specified in ACA is included. While current eligibility varies by state, adult Medicaid eligibility is generally limited to pregnant women and low income parents of Medicaid-eligible children. Unless an adult has children, few non-disabled working age adults qualify for Medicaid. In the Ohio case, adults in families with Medicaid enrolled children qualify for coverage if family income falls below 90% of poverty (100% in 2004).

A key concern around ACA (and previous expansions) has been the potential for Medicaid to substitute for, or crowd-out, private insurance rather than enroll the currently uninsured. Dubay (1999) defines crowd-out and outlines a topography of transitions from private to public insurance. In the case of a public insurance expansion, new enrollees can be classified into four groups:

1. Target population—transitions from uninsured to publicly insured;
2. Target population—involuntary transitions from Employer Sponsored Insurance to public insurance (e.g., job loss);
3. Crowd-out—voluntary transitions from Employer Sponsored Insurance to public insurance;
4. Crowd-out—publicly insured who gain eligibility for Employer Sponsored Insurance, but remain on public insurance.

As shown above, crowd-out can occur when an individual (a) drops private insurance due to a public coverage expansion or (b) retains subsidized coverage when an employer sponsored offer becomes available. Within this framework, it is important to note that involuntary transitions from private to public coverage, such as those due to the loss of a job, do not qualify as crowd-out or substitution. This paper examines Groups 1–3 above, but our methodology precludes estimates for Group number 4.

Both the cost of insurance and the prevalence of private insurance in the target population contribute to the level of crowd-out associated with an expansion. The basic theory

predicts that an individual will choose public coverage when total cost of the public insurance is less than private coverage through their employer. Furthermore, obtaining public insurance also allows an individual to move to another job offering higher wages in lieu of insurance benefits. Conversely, crowd-out is uncommon for very low income groups who are predominantly uninsured. Extending eligibility to a largely uninsured population presents few opportunities for crowd-out if few have private insurance. Finally, expansions to groups with higher incomes present more opportunities for crowd-out due to the higher prevalence of private insurance as income increases.

Previous studies estimate the scope of this crowd-out or substitution effect for children, but almost no studies examine adults. In a key early econometric study of crowd-out for child coverage, Cutler and Gruber (1996) found that up to 50% of the increase in Medicaid coverage for children in the early 1990s was offset by a decrease in private coverage. More recent studies have produced similar estimates while others found lower crowd-out estimates for the same Medicaid expansions and the later CHIP program (Gruber & Simon, 2008; Thorpe & Florence, 1998–1999; LoSasso & Buchmueller, 2004; Shore-Sheppard 2008; Ham & Shore-Sheppard, 2005). Due to methodological limitations, most studies estimate a single substitution value nationwide. Despite the fact that each state implements their own substitution prevention techniques, only a few studies have produced substitution estimates for individual states. Importantly, Sommers, Zuckerman, Dubay, and Kenney (2007) found private–public substitution for children covered by CHIP ranging from a low of 7.4% to a high of 19.1% for ten study states in 2002. No study has examined the stability of substitution across time.

Due to Medicaid and CHIP's limited coverage of adults, very few published studies examine substitution for adults. In addition to expanding coverage for children, the early Medicaid expansions in the late 1980s and early 1990s also included pregnant women, with all states raising eligibility for pregnant women to 133%–185% of FPL and with five states setting eligibility at 200% of poverty or higher by 1995 (National Governors Association, Center for Best Practices, 1995). Studies of these expansions found only minimal substitution of private insurance (Aizer & Grogger, 2003; Dubay & Kenney, 1997). Similarly, few studies focus on the expansions designed to cover the lowest income parents. In an early four state study, Kronick and Gilmer (2002) found almost no substitution for adults in poverty, but almost 45% of the increase in Medicaid coverage for the near-poor was offset by reductions in private coverage. In an examination of seventeen states expanding coverage for parents between 1995 and 2001, Busch and Duchovny (2005) found 24% of the increase in parental Medicaid coverage was due to a reduction in private coverage.

This study uses two years of telephone survey data from 90,897 households in Ohio to examine the substitution from private to public insurance. The first part of this paper reports the results from surveys for new Medicaid enrollees to identify the scope of current substitution for adults in Ohio Medicaid. The second part estimates a linear probability model to examine the characteristics of adults who report private coverage preceding Medicaid enrollment.

Ohio Medicaid Eligibility

National interest in Ohio is not due to a bellwether or a leading edge policy role, but is due to Ohio's falling in the large group of "median" states. ACA will expand Medicaid eligibility in 2014 to all adults under 133% of poverty, but twelve states already including adults at ACA income levels have expanded eligibility to include childless adults (Broaddus & Angeles, 2010). While several of these programs have less comprehensive coverage than Medicaid or are no longer accepting new enrollees, Arizona, Delaware, the District of Columbia, Hawaii, Maine, Massachusetts, Minnesota, New York, Pennsylvania, Vermont, Washington, and Wisconsin have all implemented an expansion to ACA levels.

Unlike the states implementing early adult expansions, enrollment and eligibility for adults in Ohio Medicaid falls consistently in the middle of the state rankings. Table 1 presents a brief comparison of Ohio to the national average, or median, adult eligibility. Ohio's adult Medicaid enrollment closely parallels the national estimates with 9% of non-elderly adults enrolled in Medicaid compared to 10% nationally. Similarly, adults comprise 49.0% of all Medicaid beneficiaries in Ohio compared to 50.5% for the US. Comparing eligibility is more problematic given the multiple dimensions of adult Medicaid eligibility. Ohio's income eligibility thresholds for parents (90% of FPL in 2008, 100% in 2004) exceed the median values for the fifty states and DC while Ohio's income thresholds for disabled adults are more restrictive than the national median. Overall, the Ohio case is not *statistically* generalizable, but Ohio Medicaid's adult enrollment and eligibility thresholds can be viewed as "typical" among states.

Table 1. Ohio Adult Medicaid Percent Enrollment and Eligibility

	Ohio	National
Medicaid as % of 18–64 Population, 2009[1]	9%	10%
Medicaid enrollment by Group, 2009[1]		
Children	51.0	49.5
Adults	23.0	25.2
Elderly	8.6	10.2
Disabled	17.3	15.1
Income eligibility threshold as percent of poverty line, 2009		
Working Parents[2]	90	64[4]
Jobless Parents[2]	90	38[4]
Disabled – Single[3]	65	85[4]
Disabled – Couple[3]	83	85[4]

[1]Source: Urban Institute and Kaiser Commission on Medicaid and the Uninsured. Ohio Distribution of Medicaid Enrollees by Enrollment Group. 2010.

[2]Source: Kaiser Commission on Medicaid and the Uninsured. 2010.

[3]Source: Ross and Jarlenski 2009.

[4]Median value across the 50 states and DC.

Methods

Two broad approaches are routinely used to estimate the extent of private–public crowd-out and substitution. In the first, econometric-based approaches are used to estimate the impact of Medicaid expansion on private insurance take-up (usually referred to as "crowd-out" studies). These studies use variations of Cutler and Gruber's original identification technique (Gruber & Simon, 2008; LoSasso & Buchmueller, 2004; Seiber & Florence, 2010; Shore-Sheppard, 2008). This econometric approach examines eligibility variation across states to produce national estimates for the magnitude of substitution, often through instrumental variable models designed to address the possible endogeneity of public insurance eligibility. Identifying the magnitude of crowd-out through econometric instrumental variable models has the advantage of correcting for policy endogeneity, but instrumental variable (IV) models also produce two important disadvantages. First, IV models can produce estimates with large standard errors that are sensitive to assumptions in the model. In a large econometric evaluation of the CHIP expansions, the crowd-out estimate ranged from 10% to 50% of all children, depending on the treatment of the private insurance variable (LoSasso & Buchmueller, 2004). Second, estimation via IV models also relies on variation across states, limiting the ability to derive state specific crowd-out estimates. In the same study, waiting periods did reduce crowd-out, but no other state level effects could be identified using the IV approach. The second approach relies on primary data collection to estimate the effect of public eligibility on private insurance (usually referred to as public–private substitution rather than crowd-out). The first large scale use of this approach was in a congressionally mandated survey of Medicaid beneficiaries in seventeen states (Sommers et al., 2007). The approach has subsequently been used to estimate the magnitude of substitution in New York (Shone, Lantz, Dick, Chernew, Szilagyi, 2008). These studies survey Medicaid and CHIP enrollees to determine their insurance experience prior to enrolling in public insurance. The costs of primary data collection often lead analysts to focus on smaller populations, but these studies can both examine time periods after the initial eligibility expansion and allow state level estimates of substitution.

This study applies a variant of the primary data collection approach used by Sommers et al. (2007) and Shone et al. (2008). Instead of a sample based on Medicaid administrative records, this study uses two years of an ongoing population-based household survey, the Ohio Family Health Survey (OFHS), designed to monitor the experiences of Medicaid beneficiaries in Ohio and to compare their experiences with the non-Medicaid population (Ohio Department of Job and Family Services, 2004; Ohio Department of Insurance et al., 2009).

The 2008 OFHS was a computer assisted telephone interview (CATI) that employed a dual-framed, stratified, random digit dial (RDD) telephone survey of 50,944 Ohio residents. The 2008 OFHS is a complex survey that was designed as a stratified, list-assisted—uses listed telephone numbers to improve efficiency (Casady & Lepkowski, 1993)—RRD sample with the landline being framed to one or more blocks and stratified by county, enabling independent

samples from 88 counties to be merged to regional and statewide strata. A supplemental sample was applied to the landline design to enable adequate representation of African Americans, Asian Americans, and Hispanics. The Asian and Hispanic oversamples were list assisted by surnames and Hispanic respondents were given the option of a Spanish or English interview. The dual-frames were constituted by landline-any and cell phone-any selection. Differing from the landline design, the cell phone-any selection employed a zero-block, mixed-use method using the NXXTYPE protocol for selection and resulted in one stratum. This dual-frame with a separate cell phone sample ensured a higher representation of younger people, those holding multiple jobs, and single-parent families.

The American Association for Public Opinion Research (AAPOR) Response Rate # 3 (RR3) for the 2008 OFHS was 34.6% for the landline sample and 31.1% for the cell phone sample. The highest response rates were in Ohio's Appalachian and rural areas, the lowest rates were in the state's metropolitan and suburban areas. A validation study was conducted by re-contacting 10 percent of all completed landline interviews to verify responses on key variables related to data setup (e.g., presence in the household of respondent; child in the household) and select key household variables (e.g., insurance status at the time of the survey for respondent and child; household ZIP Code). Each re-contacted record was given a status on consistency of response: (a) validated high consistency, (b) validated consistency, and (c) validated with inconsistencies. The results were 79% validated high consistency, 3% validated as consistent, and 17% validated with inconsistencies. The majority of records coded as validated with inconsistencies were due to the use of a liberal proxy policy during the validation interviews; i.e., proxies were allowed to complete the validation study if the respondent was verified, but was unavailable to respond. Additionally, an external comparison, using United States Census data, examined county and regional expected response characteristics for purposes of adjustments to interviewing processes.

Comparing the characteristics of the 2008 OFHS to U.S. Census data resulted in a close match (greater than 90%) in terms of county profiles factoring for race, education, poverty, gender, children in the household, work status, and age. As has been found with many telephone surveys, the age variable was inconsistent with Ohio's distribution of age with 60.8% of respondents being 50 years or older. Therefore, weighting was employed to adjust adult age in the analyses. The 2004 OFHS used the same methods described above for the landline survey; a cell phone survey was not employed. The RR3 for the 2004 OFHS was 39.5; the validity study resulted in 84% of initial responses being totally or highly consistent, with 16% having more than 10% inconsistency, with a majority of the inconsistency being related to a liberal proxy used in the validation study. The U.S. Census profile match was greater than 90% for all variables except age, which was slightly skewed to older adults, with 41.1% of respondents being 50 years or older. Weighting was employed to adjust adult age in the analyses. A detailed description of the survey methodology can be found in the 2008 OFHS Methodological Report

(Macro International, 2009). All findings in this study adjust for the complex survey design used in the OFHS employing Stata 11.0 complex design commands.

      The first step in the analysis uses a subset of the OFHS that is representative of all non-institutionalized adults aged 19–64 in Ohio who have been enrolled in Medicaid for less than twelve months. All adults covered by both Medicaid and Medicare are excluded since Medicare would be their primary payer. Similarly, the OFHS uses household based and individual cell phone sampling frames and does not sample the institutionalized population. The OFHS sampling frames include both publicly and privately insured households, and the full sample allows comparisons of the substitution findings to low-income, privately insured population in Ohio.

Definition of Substitution

Sommers et al. (2007) highlights the importance of distinguishing between voluntary and involuntary substitution. Due to Medicaid's role as a safety net program, much substitution of public insurance for private coverage will be involuntary, with loss of employment being the most frequent reason for voluntary substitution. The substitution literature focuses on individuals who enroll in Medicaid coverage when they could otherwise obtain private insurance, usually via their employer sponsored group plan. This study follows Nogle and Shenkman (2004) and Allison, St. Peter, Huang, and LaClair (2003) by defining voluntary substitution as cases where new adult Medicaid enrollees: (a) had private insurance coverage immediately prior to their Medicaid coverage and (b) are still eligible for an employer sponsored group plan. Previous research also has found that half of parents who could put their child on an employer sponsored plan, but instead chose CHIP, reported that their employer plan was unaffordable (Sommers et al. 2007). A second estimate will exclude from the substitution results those individuals reporting that their employer sponsored plan was not affordable.

      The OFHS uses a battery of questions to identify private–public substitution. First, the survey identifies the primary coverage for each respondent. For this study, the coverage responses are aggregated to Medicaid, Employer Sponsored Insurance (ESI), Other private plans purchased on the individual market, and Uninsured. For all insured adults (both Medicaid and privately insured), a second question asks how long they have been covered by their current primary insurance plan. For individuals covered by their current insurance for less than twelve months, a third follow-up question asks whether they were covered by any other plan before obtaining coverage through their current primary plan. Combining the information from this series of questions allows the tracking of transitions from private insurance to Medicaid. This initial estimate of transitions from private to Medicaid includes involuntary transitions due to job loss and loss of eligibility for ESI.

      By including the substitution questions in a larger household survey, the OFHS allows an examination of who substitutes public for private coverage. Table 2 presents the estimates of a linear probability model that regress the outcome 'Transitioned from Private Insurance to

Medicaid' on a series of demographic and economic determinants. In addition to demographics, the key variables in the model act as a proxy for the availability of private insurance. Specifically family poverty level, unemployed family (all workers in the family are unemployed), whether the respondent is in the small group health insurance market (employed by a firm with less than 50 employees), and, part time work status all contribute for eligibility for an employer sponsored insurance plan. In addition to the insurance availability proxies, the model includes a disability status, the county unemployment rate, and the year of the survey. The linear probability estimates are robust to model specification, with the marginal effects from the equivalent probit model producing equivalent magnitudes and significance as the linear probability coefficients.

Findings

Table 2 uses the 2004 and 2008 OFHS to summarize adult Medicaid enrollment in Ohio and the analysis sample. In 2008, 9.3% of adults in Ohio report Medicaid as their source of insurance coverage. Reducing eligibility for parents from 100% to 90% of poverty contributed to the drop from 11.2% in 2004. Table 2 uses family income, presence of children, recent pregnancy, and four measures of disability to estimate eligibility for Medicaid. In both 2004 and 2008, an estimated 10% of the adult population was eligible for Medicaid.

   The second half of Table 2 shows the estimated source of eligibility for adults reporting Medicaid coverage. In 2008, 57% of adults reporting Medicaid coverage met the income thresholds and family requirements for income eligibility. Another 18% met at least one of the four disability screens in the OFHS. Since survey data lack spend-down and other Medicaid eligibility criteria, the source of eligibility for the remaining 25% of Medicaid adults in 2008 cannot be determined. The final row of Table 2 indicates that 27% of adults reporting Medicaid coverage enrolled within the last 12 months. The OFHS includes prior insurance coverage only for these new enrollees, and these adults are the focus of the substitution analysis in Table 3.

Table 2. Estimates of Medicaid Enrollment from the OFHS, 2004 and 2008

	2004		2008	
All Adults 18–64	Percent	Std. Error	Percent	Std. Error
Enrolled in Medicaid	11.18	0.23	9.33	0.21
Estimated eligible for Medicaid	10.29	0.23	10.24	0.24
Number Observations	33,585*		36,694*	
All Medicaid Enrollees, aged 18–64				
Income Eligible	50.70	1.21	56.55	1.36
Aged, Blind, Disabled	15.52	0.87	17.97	1.00
Undetermined Eligibility	33.77	1.17	25.48	1.17
Enrolled within last 12 months	26.20	1.09	27.16	1.25
Number Observations	3,173*		3,044*	

*Sample sizes do not correspond to percentages due to weighting.

Source: Authors' estimates from the Ohio Family Health Survey, 2003–2004 and 2008–2009.

Table 3 establishes the initial estimate of both voluntary and involuntary private–public substitution for adults in Ohio Medicaid for 2004 and 2008. Of adults enrolled in Medicaid for less than twelve months, 19.0% in 2008 reported private coverage immediately prior to Medicaid coverage. In contrast, 28.7% of respondents in 2004 had private coverage before their enrollment in Medicaid. Of these 19.0% in 2008, 17.5% transitioned from an Employer Sponsored Group to Medicaid and the remaining 1.5% had Other Private coverage, usually a plan purchased in the individual market.

The second half of Table 3 estimates a 19.0% private to public substitution rate in 2008, but this initial estimate includes voluntary and involuntary transitions to Medicaid. Of these involuntary transitions, unemployment explains most of the transition from private to public coverage. Decomposing the 19.0% new Medicaid enrollees who had had private coverage, 12.7% of this group switched from private to public coverage and were unemployed at survey time. Ten percent were married, and were not just unemployed themselves, but also had an unemployed spouse. In 2004, 16.4% of respondents were unemployed and 12.6% lived in households with no employed adults.

Table 3. Prior Insurance Coverage for New Adult Medicaid Beneficiaries Enrolling within the Last 12 Months, Excluding the Medicare Dually Eligible

Year	2004		2008	
No. Respondents	772		682	
	Percent	Std. Error	Percent	Std. Error
Switched to Medicaid from:				
Any Private	28.7%	2.2	19.0%	2.2
Employer Sponsored Insurance	25.2	2.1	17.5	2.1
Other Private	3.5	1.0	1.5	0.7
Switched from Any Private				
and Unemployed Respondent	16.4	1.7	12.7	2.0
and Zero Worker Family[1]	12.6	1.6	10.0	1.8
and Uninsured in last 12 mos.	10.6	1.4	7.1	1.4
and Self-employed	1.2	0.5	0.4	0.2
and Employer offers ESI	9.1	1.5	4.5	1.1
and ESI Eligible	4.0	0.8	2.6	0.9
and ESI Eligible (adjusted)[2]	4.6		2.9	
and ESI Eligible (adjusted)[2], butreports unable to afford ESI	2.5		1.8	

[1]Employment status was only asked of the respondent and their spouse if the respondent was married. Employment status of additional adults in the household is unknown if more than two adults in the family or if household consists of unmarried adults.

[2] Adjusted for availability of ESI through a family member.

Source: Authors' estimates from the Ohio Family Health Survey, 2003–2004 and 2008–2009.

The more policy relevant measure focuses on voluntary substitution, or the percent of Medicaid beneficiaries that could have actually enrolled in private group insurance instead of Medicaid.

Table 3 indicates that most Medicaid adults transitioned from private coverage to Medicaid coverage due to job loss. An additional 0.4% of the 19.0% who switched did have not access to an employer sponsored group plan due to their being self-employed, compared with only 1.2% in 2004. Of the 19.0%, just 4.5% worked for an employer offering a group plan (9.1% in 2004). After removing involuntary substitution, only 2.6% of Medicaid enrollees in 2008 were eligible for their employer sponsored group plan, compared with 4.0% in 2004.

A final adjustment accounts for access to an employer sponsored group plan through either a spouse or a previous employer. The OFHS only asks the respondent if they are eligible for ESI through their employer, but it does not ask if they could obtain ESI through a spouse or previous employer. Since the OFHS interviews both publicly and privately insured households, it can proxy access through a spouse. In both 2004 and 2008, 29% of adults with ESI did not have eligibility through their own employer. Combining this information with the results in Table 3:

Medicaid Adults eligible for ESI through their employer (2008) = 2.6%

Adults with ESI reporting eligibility through their employer (2008) = 70.4%

Medicaid Adults who are married (2008) = 28.3%

Medicaid Adults eligible for ESI, adjusted for access through a spouse

$= 28.3\%*[2.6\% \div 70.4\%] + 71.7\%*[2.6\%]$

$= 2.9\%$ (2008)

In this calculation, the adjustment does not apply to all Medicaid adults since only 28.3% are married, limiting access to ESI through a second worker in the family. Adjusting for access through a spouse, by using the proxy of adults reporting ESI coverage and ESI eligibility, produces the final estimate of 2.9% of adult Medicaid enrollees who switched from private coverage to Medicaid, but who still had access to ESI through their employer or another source. The equivalent calculation for 2004 produces an estimate of 4.6%.

Rather than the initial substitution estimate of 19.0%, 2.9% in 2008 is the best estimate for the percentage of all Medicaid beneficiaries who were enrolled for less than twelve months, and have a viable private alternative to Medicaid coverage at the time of enrollment. This 2.9% estimate for private–public substitution accounts for the high percentage of transitions caused by job loss and the minimal availability of employer sponsored coverage among low income workers. The true value of private–public substitution in Ohio may be lower, since this estimate cannot identify individuals who dropped their private coverage since they could no longer afford the coverage.

Previous work has identified that up to half of individuals intentionally substituting public for private coverage report that they could no longer afford the private alternative (Sommers et al., 2007). Affordability is also a problem for the adults in this sample. Across both years of data, 38% of adults who were eligible for ESI, but switched to Medicaid, reported that

they could no longer afford their employer sponsored coverage. As Sommers et al. (2007) indicated, excluding Medicaid adults who report they cannot afford their employer's plan reduces the crowd-out estimates from 2.9% to 1.8% in 2008, and from 4.6% to 2.5% in 2004.

Table 3 established a private–public substitution estimate of 2.9%, but it cannot explain the level of transitions from private–public coverage. Table 4 presents the results from a linear probability model of the determinants of adult transitions from any private coverage to Medicaid coverage. This sample includes all transitions from any private coverage to Medicaid coverage, not just the more narrow substitution group that is eligible for employer sponsored coverage.

Regression results indicate that few factors beyond family poverty level significantly influence the probability of transitioning from private to public coverage. In the model, the lowest household incomes are the least likely to have private insurance before their Medicaid enrollment. Specifically, adults in households below 100% of the federal poverty line are 26.9 percentage points (p=0.01) less likely to have private insurance immediately before beginning Medicaid coverage, compared with households reporting incomes over 300% of poverty (these households qualify for Medicaid due to their high medical expenses). Similarly, adults between 101% and 150% have 16.0% lower transition rates.

In addition to the direct poverty measures, the significant education variables indirectly capture the poverty effect. Adults completing high school, some college, or graduating from college have a significantly higher percentage of private coverage before Medicaid enrollment, compared with individuals who never completed high school. Few other variables indicate a significant effect, with neither age, sex, race, disability, part-time work status, working for a small business, nor local unemployment rate producing effects significantly different from zero.

The significance of the Year 2008 dummy variable indicates that this broad substitution measure is not constant over time. Previous studies of private–public substitution rely on single cross sectional surveys of enrollees to estimate substitution and have been unable to examine if substitution varies over time. With the repeated surveys of the OFHS, results indicate that fewer enrollees had private coverage before enrolling in Medicaid in 2008 than in 2004. However, it is not possible to determine the root cause of this change. By the end of data collection for the 2008 OFHS, Ohio's economy was already showing the impact of the 2008–2009 recession. Confounding the economic effect is the fact that Ohio also reduced income eligibility for parents of Medicaid enrolled children from 100% of poverty to 90% in 2005.

Table 4. Linear Probability Model of Private Insurance Coverage Before Medicaid Enrollment for Adults Age 18–64 with Family Incomes <= 300% FPL, Excluding Medicare Dually Eligible

	Coef.	Std. Err.	
Age 25–34	-0.007	0.039	
Age 35–44	0.023	0.046	
Age 45–54	-0.064	0.046	
Age 55–64	-0.032	0.072	
Family Poverty 101%–150% FPL	0.109	0.043	**
Family Poverty 151%–200% FPL	0.177	0.055	***
Family Poverty 201%–300% FPL	0.323	0.074	***
Black	-0.032	0.039	
Asian	-0.025	0.109	
Hispanic	0.002	0.055	
Female	0.055	0.036	
Married	0.097	0.040	**
High School Graduate	0.105	0.037	***
Some College	0.100	0.045	**
College Graduate	0.169	0.072	**
Zero adults employed last week	0.067	0.041	
Employed by Firm 2–50 Workers	-0.046	0.046	
Disabled	-0.021	0.036	
Part time worker	0.030	0.047	
County Unemployment Rate	-0.016	0.012	
Year = 2008	-0.074	0.030	**
Constant	0.145	0.101	
Number of Observations	1,456		
R-squared	0.1175		

***p < 0.01 **p < 0.05 *p < 0.10

Source: Authors' estimates from the Ohio Family Health Survey, 2003–2004 and 2008–2009.

Discussion

To the author's knowledge, this study is the first that applies the primary data collection approach used by Sommers et al. (2007) and Shone et al. (2008) to examine substitution for adults in Medicaid. Previous studies using econometric approaches have found substitution

ranging from almost no substitution for adults in poverty in four states (Kronick & Gilmer, 2002) to 24% for parental expansions across seventeen states in the late 1990s (Busch & Duchovny, 2005). This paper's initial estimate for total substitution of 19.0% (2008) and 28.7% (2004), for all adults reporting any private coverage before enrolling in Medicaid, closely parallels Kronick and Gilmer's (2002) estimates. However, this initial estimate includes both voluntary and involuntary substitution. With the additional data available through the primary data collection approach, most of the total substitution can be attributed to changes in employment or job loss and its associated loss in access to an employer sponsored group plan. After accounting for job loss and eligibility for ESI, substitution drops to 2.9% in 2008 and 4.6% in 2004 for all new adult Medicaid enrollees. If Medicaid adults who reported that they can no longer afford their employer sponsored plan are excluded, these estimates drop by another 38% to 1.8% in 2008 and 2.5% in 2004. These estimates for Ohio's parents below the poverty line coincide more closely to Kronick and Gilmer's finding of no substitution for parents in poverty. The multivariate results for all Private to Medicaid transitions find few differences in the probability of transition. Direct and indirect measures of poverty, including educational attainment, proved to be the only significant predictors of private insurance coverage before enrolling in Medicaid.

These results indicate that substitution will likely remain low in the Medicaid expansions planned under ACA. ACA will expand Medicaid eligibility to childless adults and increase eligibility for all adults up to 133% FPL. This paper shows that less than 5% of new Ohio Medicaid enrollees had an employer sponsored insurance option at the time of their enrollment. Policy makers can expect similarly low substitution for the expansion to childless adults below 100% of poverty due to equally low availability of ESI. Projecting the results from 100% of poverty up to the new 133% threshold is more problematic since only disabled beneficiaries in Ohio can enroll in Medicaid at the new income threshold. Assuming similar behavior for the income eligible, the results from the linear probability model indicate that substitution will be modestly higher at the higher income thresholds, largely due to more beneficiaries having access to ESI. However, voluntary substitution can be expected to remain low since *all* transitions from private coverage to Medicaid (both voluntary and involuntary) are only 10% higher for families currently earning 100% to 150% of poverty.

Using a primary data collection approach for state level estimates of substitution imposes an important limitation on the results. As highlighted by Dubay (1999), crowd-out includes both (a) individuals voluntarily dropping their employer-sponsored coverage to take-up public coverage and (b) individuals already on public coverage who elect not to enroll in a new employer sponsored insurance offer. This paper examines only the first form of crowd-out, substitution, or transition from private coverage to public coverage. Estimating crowd-out for individuals who decline a new private insurance offer requires multi-state econometric techniques that prevent state-level estimates.

Conclusion

This paper concludes that few adults who enrolled in Ohio Medicaid voluntarily replaced their private coverage with Medicaid. In 2008, only 2.9% of new Medicaid adults substituted public for private coverage, and only slightly more in 2004 at 4.6%. Of this voluntary substitution, two-thirds report that they could not afford the insurance plan offered by their employer. While adults with higher incomes had higher probabilities of having private insurance before Medicaid, few Ohio parents in poverty have transitioned from private coverage to Medicaid.

Corresopondence
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