Health Insurance Coverage Reduces Childbearing among Near-Poor Adolescents

Jacqueline A. Cox, M.S.[a,b,c*], Deborah R. Graefe, Ph.D.[a], and Gordon F. De Jong, Ph.D.[a,d]

[a]Population Research Institute, The Pennsylvania State University, University Park, PA

[b]Prevention Research Center, The Pennsylvania State University, University Park, PA

[c]Department of Human Development and Family Studies, The Pennsylvania State University, University Park, PA

[d]Department of Sociology, The Pennsylvania State University, Universtiy Park, PA

*Address correspondence to: Jacqueline Cox, The Pennsylvania State University, Human Development & Family Studies, 315-A Health and Human Development-East, University Park, PA 16802. Phone: 814-865-5206. Fax: 814-865-2530. Email address: jac705@psu.edu

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Abstract

Purpose: The impact of health insurance on adolescent childbearing takes on increased salience in the context of the ongoing U.S. healthcare debate. Health insurance coverage is important for accessing healthcare services, including reproductive health services, yet prior research has not examined the association between insurance coverage and childbearing. Consequently, the role of insurance in the prevention of adolescent childbearing has been unclear.

Methods: Using three panels (2001, 2004, and 2008) of the nationally representative Survey of Income and Program Participation (SIPP) data, hierarchical multilevel logistic regression models test the association between pre-pregnancy health insurance coverage and childbearing for a sample of 7,263 unmarried adolescent women (aged 16-19), controlling for known correlates of adolescent childbearing. Analyses examine variations in the association based on family income.

Results: The odds of reporting childbearing are greater by 74% for women who were uninsured compared with women who were insured before a pregnancy occurred. Individual and family characteristics attenuate this effect; however, a significant interaction indicates differential effects of insurance as a function of family income.

Conclusions: The findings of the current nationally-representative study suggest that health insurance coverage is associated with a lower probability of childbearing for near poor adolescents. Future research should examine potential mechanisms through which insurance coverage influences adolescent childbearing.

Keywords: adolescent childbearing; health insurance; fertility; reproductive behavior

Introduction

Evidence regarding the impact of health insurance coverage on adolescent childbearing is important in the context of the ongoing healthcare debate in this country, from both health science and public policy perspectives. Insurance coverage potentially lowers the likelihood of adolescent childbearing by increasing access to reproductive health services. Yet no nationally-representative studies in the U.S. address this salient issue for both adolescent fertility and healthcare policy. The current study (1) examines the impact of insurance on childbearing for adolescent women in the U.S.; (2) assesses the influence of insurance for robustness by controlling for established correlates of adolescent childbearing; and (3) determines if the influence of insurance differs across levels of family income.

Adolescent women in the United States have substantially higher rates of teen pregnancy, childbearing and abortion than adolescents in other developed countries, with fertility rates three times higher than their Canadian peers and ten times higher than Dutch peers.[1] Approximately 18% of American women will become mothers before the age of 20.[2] Such high rates of adolescent childbearing are critical, as adolescent mothers and their children experience a multitude of negative consequences in nearly all facets of life. These consequences cost American taxpayers an estimated $10.9 billion dollars in 2008 alone.[3]

Prevention of teen pregnancy and childbearing has been named a national health priority as part of the Healthy People 2020 campaign[4] and the President's Teen Pregnancy Prevention Initiative,[5] with most efforts to reduce adolescent childbearing

focusing on individual behavior despite researchers' recognition of community and societal level influences on adolescent childbearing.[6] The considerably higher rates of adolescent childbearing in the U.S. relative to other developed nations is most often attributed to the more prevalent and extreme poverty, lack of universal comprehensive sex education and limited access to reproductive health services ("services") in the U.S..[7–9] Indeed national healthcare systems in Canada and most European nations may improve access to services and contribute to the lower rates of adolescent childbearing in these nations.

The importance of access to services for adolescent fertility rates was highlighted by a recent study that found availability of family planning clinics is associated with lower rates of teen fertility in U.S. counties.[10] This association is likely due to increased access to contraception and other health resources, suggesting that youth lacking access to services may be at increased risk for adolescent childbearing. However, family planning clinics are not able to meet the needs of all adolescents. In 2008, publicly and Title X funded family planning clinics served only 26.9% of women in need of publicly supported contraceptive services.[11] This suggests that nearly three-quarters of reproductive age women will require contraceptive services from private physicians (possibly covered by insurance) or have unmet contraceptive needs.

In the United States, 11.3% of adolescents lack insurance coverage.[12] Uninsured adolescents are more likely to postpone or not receive healthcare than those with both public or private insurance, and nearly half (41%) had no physician visit during the past year.[13] This lack of regular healthcare likely prevents adolescents from obtaining prescriptions and gaining accurate information about both contraception and

fertility from their physician. Furthermore, economically disadvantaged adolescents are substantially less likely to be insured than more affluent adolescents,[14] which may contribute to socioeconomic and racial disparities consistently found in research on adolescent fertility.

Although the association between disadvantage and adolescent fertility is consistent, the mechanisms through which disadvantage influences childbearing are not well understood. Access to healthcare afforded by insurance coverage may be a mechanism through which family income, race, and other demographic determinants influence adolescent childbearing; understanding this potential mechanism is important to inform public policies for reducing adolescent childbearing.

Adolescent childbearing rates vary substantially according to demographic factors. Being Black or Hispanic, living in poverty or a single parent household, and lower parental education increase adolescents' odds of becoming teen moms.[15–17] However, understanding the mechanisms that drive these associations is challenging as these factors often co-occur. For example, Black and Hispanic adolescents are more than twice as likely as non-Hispanic White adolescents to become teen moms[18], but are also three times as likely to live in poverty[19] and more likely to live in single parent households.[20]

Whether measured by income or parental education, socio-economically disadvantaged adolescents are more likely to experience adolescent childbearing. However, income effects fade when researchers account for school involvement and parent's educational expectations[15] or family structure[21], suggesting that influences of income are transmitted through opportunities, resources, and goals. This relationship is

not particularly surprising, as parental education and income largely determine the resources and opportunities available to youth.

Parents with higher education not only may earn substantially more than less educated parents, reducing their daughters likelihood to report financial barriers to obtaining healthcare[22], but they may also have more accurate reproductive health knowledge. Higher educated parents are more likely to have ongoing discussions about sexuality with adolescents[23], which may help parents convey their expectations (for delayed and protected sex) and enable parents to help the adolescent obtain appropriate services before they become sexually active. Accurate fertility knowledge and the ability to obtain services are important factors in adolescent childbearing since childbearing is ultimately determined by the adolescents' sexual activity, deliberate attempts to avoid pregnancy (i.e., contraceptive use), and the proportion of pregnancies that end in birth.[24–26] Several demographic determinants of adolescent childbearing are associated with early sexual initiation,[26] which increases adolescents risk for pregnancy and childbearing. Thus, some researchers have hypothesized that adolescent childbearing disparities may result from differences in perceived opportunities and attitudes towards non-marital childbearing.[21,27,28] Adolescents who anticipate few future opportunities or hold more accepting attitudes towards non-marital fertility may be less motivated to abstain from sex, avoid pregnancy, or terminate a pregnancy.

However, unique influences of race and family structure on early childbearing remain even after controlling for recent sexual activity, educational expectations and investments, attitudes towards non-marital childbearing and other family characteristics[21]. These persistent disparities suggest that barriers preventing youth

from obtaining accurate information and resources for avoiding unintended childbearing contribute to early childbearing. One possible barrier is disparity in healthcare access.

Current Study and Hypotheses

This study expands previous research on adolescent childbearing by using longitudinal data to examine the association between insurance and adolescent childbearing. Our review of the literature suggests three main hypotheses. First, insured adolescents are expected to have a lower incidence of childbearing compared to their uninsured peers. Second, the effect of insurance is expected to remain even after accounting for demographic characteristics. Last, we expect the insurance effect to differ by family income such that the impact of insurance is greatest for the most disadvantaged adolescents, indicated in this study by family income lower than 138% of the poverty line.

Methods

Data Source

We use data from the 2001, 2004, and 2008 panels of the Survey of Income and Program Participation (SIPP), a nationally representative longitudinal survey of the U.S. population. In-home interviews were conducted for each member of 14,000 to 36,700 households over a period of 3 to 4 years for each panel.[29] The current study addresses the research questions using data for three time points, spaced 12 months apart, for each sample woman.

To ensure temporal ordering of the predictor and outcome variables the sample is restricted to women who participated in at least two waves of data collection. We focus on adolescent childbearing among women ages 16 to 19 years old because (1) childbearing among younger adolescents is relatively rare, and (2) data limitations prevent us from obtaining baseline insurance information for youth who are under age 16 at time 2, when childbearing is first reported.

Additional sample restrictions are used to ensure that analyses are most representative of unintended births to adolescent mothers. Married women are excluded from the study sample, as their childbirths are typically reported as intentional. Participants also had to live with at least one parent at baseline to provide data on family and parent characteristics. Our final sample consists of 7,263 unmarried young women who participated in at least two waves of the data collection, the latter at which childbearing experiences were measured.

The fertility outcome we study was measured in supplements to Waves 3 and 6 of the 2001 and 2004 Panels and Waves 4 and 7 of the 2008 Panel. We include all observations as person years (with a maximum of two observations contributed per participant) in a multilevel analysis that controls for clustering among individuals. This analytical strategy permits estimates of both between-person and within-person effects. Given our nationally representative sample, we focus on the population-average model, which provides estimates that can be interpreted as the change in log-odds of teen childbearing associated the variable nationwide, averaged across individuals.[30]

Measures

Teen Childbearing. The dependent variable is a binomial indicator of having had a birth. Women who reported having an overnight hospital visit during the past 12 months were asked if the purpose of the visit was to give birth. Participants who reported not having a hospital stay in the last 12 months or who reported that the visit was not for childbirth are coded as not having experienced childbirth (0) prior to that wave. If participants reported a recent birth (childbirth=1) at more than one wave, then only the earliest reported birth event is included in our analyses. (Too few participants reported another birth within the following year to permit analysis of subsequent births.) Data on childbearing were first collected at Wave 3 for the 2001 and 2004 panels and at Wave 4 for the 2008 panel. Young women were again asked about childbearing 12 months later at Waves 6 and 7, respectively.

Insurance. Data on insurance are available for all study months prior to measurement of the dependent variable. At Wave 1, uninsured participants age 15 and over were asked when they last had health insurance (month and year) and insured participants were asked when they were last uninsured. These two items are used to calculate participants' insurance coverage for the months prior to Wave 1. Insurance is a time-varying measure and is coded dichotomously as either having insurance continuously for the 4 months prior to the earliest possible conception month for a given observation (0) or not having insurance during this period (1). Date of conception is assumed to be 9 months prior to the timing of childbirth.

Demographic Variables. Family and individual demographic variables consistently found in prior research to be related to adolescent childbearing are included. Parent's education, family income as a percentage of the federal poverty

level, and family structure are obtained by linking participants' data with that of their mothers, when available, since 98.6% of participants lived with at least their mother. Father's reports are used when maternal data are unavailable. At the individual level, we include participant's race, residence in a metro area, and panel of observation. Living in a metro area may increase access to services, and year of panel accounts for declining adolescent fertility rates over the observation period. These variables are shown in Table 1.

Analysis

In longitudinal data, the lack of independence between repeated observations result in correlated residuals and biased standard errors. Such dependency violates the assumptions necessary for OLS regression models; therefore, we use the HLM 6.08 statistical package[30], which was specifically developed to analyze multilevel data. Mean-adjusted individual weights (provided by SIPP) are used to ensure that the results are representative of the U.S. adolescent population.

In Model 1, we investigate the probability that a birth is reported for person i at time t (level-1 unit) as predicted by time (group mean centered), age (centered at 17), and quadratic age at time t, and insurance (no insurance = 1) at time t-1. A random coefficient for time accounts for the dependency between observations typical in longitudinal data. The intercept varies randomly across individuals and represents an individual's initial log odds of childbearing as predicted by the individual means of the level-1 predictors. The individual's mean age and mean quadratic age across observations control for the increased risk of childbearing associated with age.

Second, we build on our initial model by including demographic characteristics in level-two. With the exception of poverty, all level-two variables added in Model 2 are grand mean centered to permit their interpretation as the effect for the average participant based on other covariates in the model.

To test our final hypothesis, a third model includes a cross-level interaction for family poverty status and insurance to determine if the impact of having no insurance differs for those who are poor or near-poor compared with more economically advantaged youth (Model 3). Our final proposed model can be expressed as:

$$\begin{aligned} childbirth = {} & b_{00} + b_{10} * (time) + b_{20} * (age) + b_{30} * (quadage) + b_{40} * (noinsurance) \\ & + b_{01} * (age\_mean) + b_{02} * (quadage\_mean) + b_{03} * (urban\_mean) \\ & + b_{04} * (time\_mean) + b_{05} * (twoparents) + b_{06} * (parentEd) \\ & + b_{07} * (Black) + b_{08} * (Hispanic) + b_{09} * (panel01) + b_{010} * (panel08) \\ & + b_{011} * (Poor) + b_{012} * (NearPoor) \\ & + b_{41} * (noinsurance) * (Poor) + b_{42} * (noinsurance) * (NearPoor) + r \end{aligned}$$

Results

Descriptive Statistics

Table 1 presents descriptive statistics for the study. Overall, 18.0% of the observations were characterized by a prior lack of insurance or a gap in coverage. Importantly, however, women were more likely to report childbearing at observations subsequent to periods of being uninsured compared to observations when young women were insured (28.0% versus 17.9%). Of course, this relationship may be spurious, as several demographic characteristics may explain both a lack of insurance and the fertility behavior.

Results of the logistic analyses (Model 1, Table 2) indicate that, on average, the log odds that an women reports childbearing is -4.30 ($p < .0001$) -- most women do not become adolescent mothers. As anticipated, being uninsured is associated with a 0.55 point increase in the log odds of childbearing, corresponding to a 74% increase in adolescents' odds of childbearing when uninsured (OR = 1.74, 95% CI 1.492 – 2.019).

When controlling for demographic differences and time, the effect of insurance becomes non-significant (Model 2); generally, the insurance effect is explained by these characteristics. As shown in Table 2, several demographic characteristics are strongly associated with the odds of childbearing. Living in a two parent household and having parents with higher levels of education reduced women's odds of reporting childbearing. Conversely, youth who were Black, Hispanic, poor or near-poor had greater odds of adolescent childbearing. Women who were older on average across study waves had lower odds than their peers of childbearing. However, at the within-person level women were more likely to report childbearing at times when they were older.

Our final model (Model 3) tests our hypothesis that the effect of health insurance would differ as a function of adolescents' family's income. The model supports a differential effect of insurance for near-poor adolescents compared with more affluent adolescents. Near-poor women experience a 96% increase in the odds of childbirth following times when they are uninsured compared with times when they were insured (Table 2). Conversely, there is no difference in the effect of insurance for those who were poor compared with those who were affluent. Among near-poor women, 2.2% report childbearing subsequent to being insured compared with 3.4% of those uninsured

(Figure 1). The detrimental effect of being uninsured is particularly strong for women who come from near-poor families.

Discussion

The current study addresses a gap in the research by documenting the relationship between insurance and adolescent childbearing net the effects of demographic factors. Descriptive data show that young women who have insurance are less likely to become adolescent moms compared to uninsured young women. The cross-level interaction in Model 3 suggests that insurance may be most salient for preventing childbearing among adolescents from near-poor families than among more economically advantaged adolescents. However, the attenuation of the insurance effect by demographic factors for adolescents from both poor and affluent families suggests that the effect of insurance is explained partly by demographic characteristics associated with both a lack of health insurance and adolescent childbearing. Policy efforts to extend insurance coverage to near-poor adolescents deserve our attention, however.

The findings from the current study are supported by past research that shows insurance may reduce financial barriers to services and contraception, and that removing financial barriers can reduce unintended pregnancies and childbearing. An intervention providing free contraception to high-risk women demonstrated that adolescent birth and abortion rates are substantially reduced when contraception is offered at no-cost.[31] Insured women (aged 18 – 24) are three times more likely to use contraception than uninsured women.[32] Among adult women, nearly all unintended

pregnancies (95%) occur to women who do not use contraception (8%) or use contraception inconsistently (42%).[33] Future research should examine if improved access to contraception through insurance mediates the effect of insurance on adolescent childbearing or if more target outreach is necessary.

Insurance may also reduce adolescents' risk for childbearing through access to routine healthcare and more accurate knowledge of fertility, contraception, and services. Adolescents' knowledge of reproductive health and hormonal contraception is often inaccurate,[34] which may reduce their likelihood to actively seek services. Adolescents in the U.S. who become pregnant often report that they did not plan to have sex or did not think they would become pregnant at the time of conception.[35] Consequently, routine healthcare visits may be an important opportunity for physicians to provide accurate information about fertility and contraception before adolescents become sexually active, particularly for adolescents who may not otherwise seek services. More affluent adolescents, whose families can afford healthcare services, may have access to routine healthcare regardless of their insurance coverage. The parents in such families are also typically more educated, increasing the potential that parents discuss sexuality and contraception with their children, rather than or in addition to medical professionals. Furthermore, the reasons for being uninsured may be different for affluent youth compared to those who are near-poor, and affluent youth may be less likely to experience changes in insurance coverage. For affluent youth, being uninsured may represent a conscious choice by their families rather than an inability to afford and obtain health coverage. Accurate reproductive health knowledge may enable adolescents to make more informed decisions about their sexual health.

The non-significant interaction between insurance and being poor was surprising. Although our analysis cannot provide the reasons for this null finding, we offer some hypotheses. First, persistent and cumulative disadvantage among very poor youth may overwhelm the potential for insurance to inhibit childbearing; possibly, the effects of basic unmet needs resulting from poverty outweigh the effects of access to healthcare on the risk of adolescent childbearing. Second, most poor adolescents are eligible for insurance through Medicaid or SCHIP; thus those who are uninsured may represent a particular group of adolescents who are unlikely to have adolescent births. Alternatively, there may be qualitative or quantitative differences in the services and resources available to adolescents covered by public and private sources of insurance. More research is needed to address this question.

Implications

Policies should ensure that insurance provides coverage of services and contraception for adolescents. Although family planning services are covered under Medicaid for all women of reproductive age receiving Medicaid, coverage of family planning services for adolescents under the Medicaid family planning expansion programs, SCHIP, and private insurance varies across states.[36] Of the 28 states that receive funding for Medicaid expansion programs, women must be at least age 19 to be eligible in 9 states and at least 18 in an additional 3 states.[37] However, expanding coverage to adolescents may lead to reductions in childbearing and cost-savings. California's Family PACT program, which provides family planning services to low-income uninsured adults and adolescents who are not eligible for Medicaid through

Medicaid expansion program funding, averted an estimated 21,400 births to adolescents in 2002, saving California $359 million over two years (in 2002 dollars).[38]

The relationship between insurance and adolescent childbearing reinforces the importance of increasing insurance coverage and healthcare access to adolescent women. These findings support the Institute of Medicine's recommendation that contraception and patient education/counseling about contraceptive services are considered preventative care for all women of reproductive age.[39]

Conclusion

The vast majority of births to adolescents are reported to be unintended.[40] Consequently, preventing adolescent childbearing is not a matter of "convincing" young women not to have children; rather the target should be to help them prevent pregnancy and subsequent childbearing through access to reproductive health knowledge, contraception, and contraceptive alternatives. While interventions rarely attempt to reduce structural barriers, increasing access to contraception and healthcare by increasing insurance coverage has substantial public health implications. Such interventions potentially reach large numbers of youth, offer additional health benefits, and may be more sustainable than behavior change models alone.

Future research should examine potential proximate mechanisms through which insurance influences adolescent childbearing. While we are unable to examine these specific mechanisms using SIPP, these longitudinal and nationally representative data permit appropriate time ordering of insurance coverage, conception and childbearing events for the U.S. population of women ages 16 to 19 years old. Results indicate that

health insurance coverage provides a powerful tool for reducing adolescent childbearing among near-poor women.

Footnotes:

a. Data limitations prevent us from obtaining exact dates of childbirth events. As the sample was restricted to observations when women were age 19 and younger, observations when women were age 20 were excluded, even though reported births may have occurred when women were age 19, resulting in a lower birth rate for our sample than is typically reported.

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Table 1. Descriptive statistics across time (person-year observations) and individuals (level-two, person observations).

Observation Variables	**N_{obs}**	**Mean or %**	**SD**	**Min**	**Max**
Age	10979	17.39	1.09	16	19
Time*	10979	0.48	0.5	0	1
Childbearing	10979	2.0%	0.14	0	1
No Insurance	10979	18.0%	0.39	0	1
Individual Variables	**N_{ind}**	**Mean or %**	**SD**	**Min**	**Max**
Metro Residence	7263	77.0%	0.42	0	1
Mean Time	7263	0.48	0.35	0	1
Two Parent Household	7263	69.0%	0.46	0	1
Parental education	7263	1.69	0.98	0	3
White/Asian	7263	71.0%	0.45	0	1
Non-Hispanic Black	7263	15.0%	0.36	0	1
Non-Black Hispanic	7263	14.0%	0.35	0	1
2001 Panel	7263	27.0%	0.44	0	1
2004 Panel	7263	38.0%	0.49	0	1
2008 Panel	7263	35.0%	0.48	0	1
Lives with Mom	7263	99.0%	0.11	0	1
Poor (<138% FPL)	7263	24.0%	0.43	0	1
Near Poor (138-199% FPL)†	7263	13.0%	0.33	0	1
Affluent (≥200% FPL) †	7263	64.0%	0.48	0	1

*time represents the wave of outcome measurement, where childbearing reported at time 2 = "0" and time 3 = "1".

† These income levels represent thresholds at which families are eligible for Medicaid and government subsidies for privately purchased health insurance under the current health reform policy.

Table 2. Hierarchical Logistic Regression Estimates (Standard Errors) for Model predicting childbearing among adolescent women.

	Model 1			Model 2			Model 3		
	Est.	**OR**	**95% CI**	**Est.**	**OR**	**95% CI**	**Est.**	**OR**	**95% CI**
Level 2 (Between-persons)									
Intercept	-3.912	0.020***	(0.018,0.022)	-4.279	0.014***	(0.012,0.016)	-4.231	0.015***	(0.012,0.017)
Mean Age	-1.095	0.335***	(0.197,0.569)	-1.051	0.350**	(0.190,0.642)	-1.050	0.350**	(0.193,0.634)
Mean Quadratic Age	0.114	1.121+	(0.994,1.263)	0.129	1.138	(0.981,1.320)	0.129	1.138	(0.984,1.317)
Metro Residence				-0.160	0.853	(0.697,1.042)	-0.161	0.851	(0.698,1.037)
Mean Time	-0.095	0.909	(0.691,1.198)	-0.151	0.860	(0.612,1.208)	-0.157	0.854	(0.613,1.192)
Two Parent Household				-0.439	0.645***	(0.538,0.773)	-0.443	0.642***	(0.537,0.768)
Parental education				-0.205	0.815***	(0.744,0.891)	-0.209	0.811***	(0.743,0.886)
Black				0.375	1.454**	(1.153,1.835)	0.380	1.462**	(1.163,1.837)
Hispanic				0.395	1.485**	(1.161,1.899)	0.392	1.480**	(1.161,1.887)
2001 Panel				0.135	1.145	(0.931,1.407)	0.141	1.151	(0.940,1.410)
2008 Panel				-0.153	0.859	(0.705,1.045)	-0.150	0.861	(0.709,1.045)
Poor				0.433	1.543**	(1.207,1.971)	0.410	1.507**	(1.144,1.983)
Near-poor				0.567	1.763***	(1.390,2.236)	0.395	1.485**	(1.135,1.943)
Level 1 (Within-person)									
Time slope	-0.748	0.474**	(0.279,0.803)	-0.666	0.514*	(0.282,0.937)	-0.670	0.512*	(0.284,0.922)
age slope	1.346	3.842***	(2.230,6.618)	1.341	3.824***	(2.057,7.110)	1.336	3.803***	(2.074,6.973)
age squared slope	-0.142	0.868**	(0.801,0.939)	-0.155	0.856**	(0.774,0.946)	-0.155	0.857**	(0.776,0.945)
no insurance slope	0.552	1.736***	(1.492,2.019)	0.107	1.112	(0.901,1.373)	-0.209	0.811	(0.555,1.185)
Poor*no insurance							0.267	1.306	(0.803,2.123)
Near-poor*no insurance							0.673	1.961*	(1.126,3.414)

Random Effect	**Variance Component**	**Std Deviation**	**Variance Component**	**Std Deviation**	**Variance Component**	**Std Deviation**
Intercept	0.855	0.925	0.623	0.789	0.646	0.804
Time slope	0.191	0.436	0.158	0.398	0.168	0.410

+p<.08; *p<.05; **p<.01; ***p<.001

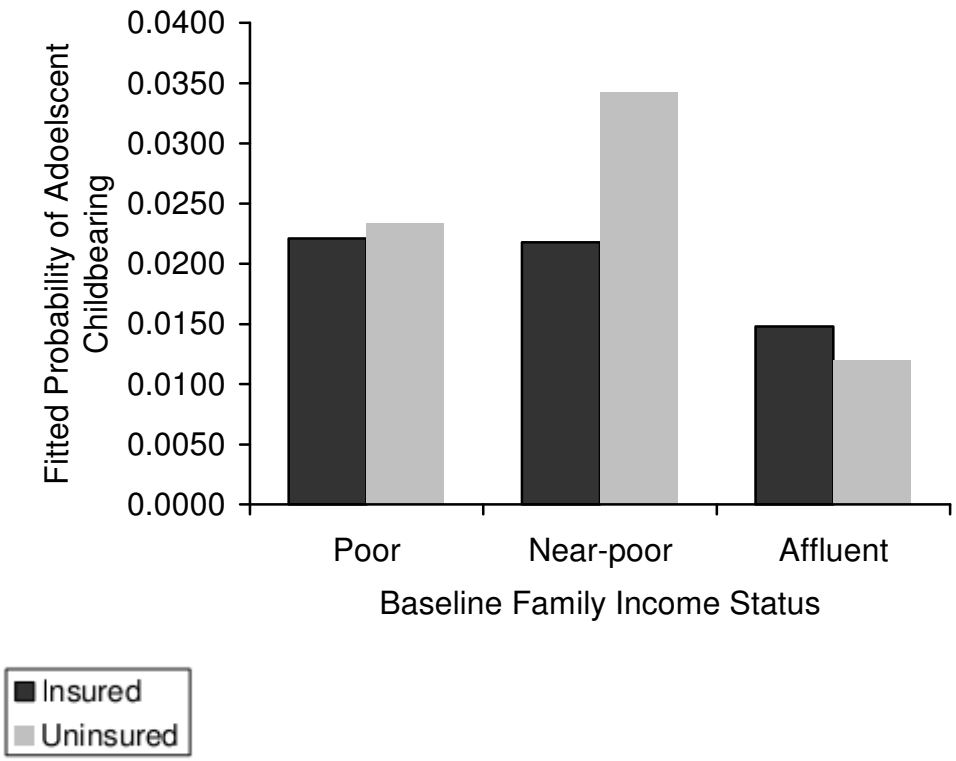

Figure 1. Fitted probability of adolescent childbearing by family income and insurance coverage, holding all other variables at their mean level. The probability of childbearing is significantly higher for near-poor adolescents previously uninsured compared to who were insured.