

# Heterogeneous Consequences of Teenage Childbearing

By DEVON GORRY\*

*The impact of teen childbearing on education and labor market outcomes is heterogeneous across socioeconomic status and race. Using miscarriages as an instrument to put bounds on the causal effects, this paper finds that teen childbearing leads to less educational attainment, lower income, and greater use of welfare for individuals who come from areas with better socioeconomic conditions. However, there are no significant adverse effects for individuals who come from worse socioeconomic conditions. Across race, teen childbearing leads to the greatest negative consequences for white teens, few effects for black teens, and some positive effects for Hispanic and Latino teens.*

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\* Clemson University. (email: devongorry@gmail.com). I am grateful for helpful feed back from Briggs Depew, Art Goldsmith, Lars Hansen, Michael Makowsky, Jennifer Trudeau, Andy Zuppann and participants at the AEA and SEA annual meetings. All mistakes remain my own.

## I. Introduction

The teen birth rate in the United States is the highest of any developed country. These births are concentrated among minority groups and those from low socioeconomic status and are often cited as one cause of the poor education and labor market outcomes that these teens face. While early literature suggests large associations between teen births and negative outcomes (Waite and Moore, 1978), more recent studies using miscarriages to evaluate the causal impact of teen childbearing find that teen childbearing is associated with modest if any adverse consequences (Hotz, McElroy, and Sanders, 2005; Ashcraft and Lang, 2006; Fletcher and Wolfe, 2009; Ashcraft, Fernandez-Val, and Lang, 2013).<sup>1</sup> This line of research suggests that policies aimed at reducing teen births may have small payoffs.

However, the literature that has advanced using miscarriages has examined average effects and has not analyzed whether there are heterogeneous impacts of teen childbearing across socioeconomic status or race.<sup>2</sup> The high teen birth rate among low socioeconomic and minority groups may not be the cause of poor outcomes but instead reflect the fact that individuals in poor circumstances

<sup>1</sup>Studies that try to identify causal effects through comparing sisters (Geronimus and Korenman, 1992) or instrumenting with age at menarche, Ob-Gyn availability, and abortion rates (Ribar, 1994) also find reduced causal impacts after accounting for endogeneity.

<sup>2</sup>Lang and Weinstein (2015) examine the effects of teen motherhood for an early cohort of women in the 1940's through the 1960's and examine heterogeneity across marital status, background, and time period. For these early cohorts, they find larger negative education effects for mothers who had premarital conceptions from more advantaged backgrounds and larger marriage effects among teens with premarital conceptions from disadvantaged backgrounds. In related work, Levine and Painter (2003) use a matching method within school to find negative impacts of out-of-wedlock teen childbearing on education and earnings, with larger effects among those with the lowest likelihood of having teen births.

simply face lower costs, or even benefits, of early childbearing.<sup>3</sup> In contrast, low teen birth rates among other groups may reflect high costs of teen childbearing.<sup>4</sup> It is important to understand whether and how the effects of teen childbearing vary in order to assess whether policies focussed on reducing teen childbearing for all teens are actually helping the populations they intend to serve.

This paper extends previous work that utilizes miscarriages as a natural experiment to put bounds on the causal effect of teen childbearing (Hotz, McElroy, and Sanders, 2005; Ashcraft and Lang, 2006; Fletcher and Wolfe, 2009; Ashcraft, Fernandez-Val, and Lang, 2013) by examining heterogeneity across socioeconomic background and race. Analyses across socioeconomic groups indicate that teen childbearing is detrimental to educational attainment and labor market outcomes for those from counties with a more educated population or a higher median income. However, teen childbearing has no negative impacts and some positive impacts for those from less advantaged counties. Across race and Hispanic and Latino origin, the impacts of teen childbearing have the largest negative impacts for white teens, very little impact for black teens, and some positive impacts for Hispanic and Latino teens. The education impacts are long lasting and the labor market impacts are largest in the short run and fade in the longer run.

These results indicate that policies aiming to reduce teen childbearing in order

<sup>3</sup>Edin and Kefalas (2005) document many accounts of poor young mothers citing childbearing as improving their lives. Kearney and Levine (2014) document that the highest rates of teen childbearing occur in areas with high income inequality, reflecting low opportunity cost of early childbearing for those at the bottom of the income distribution.

<sup>4</sup>Lang and Weinstein (2015) show that teens who face higher costs of motherhood increasingly avoided pregnancy in the 1960s.

to improve the outcomes for the most disadvantaged may not help the targeted population. In fact, these policies may have detrimental impacts for individuals facing the poorest circumstances. The heterogeneous effects of teen childbearing need to be carefully considered when assessing the benefits of teen pregnancy prevention programs. While reducing teen childbearing will improve outcomes for some populations, a focus on first improving underlying socioeconomic conditions will better serve others.

## II. Data

This study uses data from the National Longitudinal Study of Adolescent Health (AddHealth). AddHealth is a nationally representative survey of individuals in the United States who were in grades 7 through 12 during the 1994-95 school year. The survey collects data on a range of health and fertility behaviors as well as information on family background, contextual variables, and economic outcomes. Wave 1 interviews were conducted in 1994-95 with follow up waves in 1996, 2001-02, and 2008. Waves 3 and 4 ask respondents a host of fertility questions including details on the outcome of each reported pregnancy. Table 1 reports statistics on outcome variables, individual characteristics, and family background characteristics by the outcome of the pregnancies for waves 3 and 4.

The sample for this study is limited to young women from waves 3 and 4 who end first pregnancies by the age of 18 and 9 months.<sup>5</sup> Individuals reporting

<sup>5</sup>Other work defines teen pregnancy as pregnancies that begin by age 18 (Hotz, McElroy, and Sanders, 2005; Ashcraft and Lang, 2006; Hoffman and Maynard, 2008; and Ashcraft, Fernandez-Val, and Lang,

miscarriages, ectopic pregnancies, or still births are coded as miscarrying. The sample for wave 3 consists of 1,024 women, with 61 percent of these women reporting their pregnancy ending in a birth, 16 percent with a miscarriage, and 23 percent with an abortion. Similarly, the sample for wave 4 consists of 1,171 women, with 67 percent reporting births, 14 percent reporting a miscarriage, and 19 percent reporting an abortion.<sup>6</sup>

Educational outcomes include whether a respondent received a high school diploma, received a GED, and years of completed schooling. Labor market outcomes include labor income and welfare receipt.<sup>7</sup> Additional outcomes in wave 4 include household income and reported assets.<sup>8</sup> Controls are included for whether a respondent reports smoking or drinking during pregnancy and whether the respondent conceived before the age of 15 as these are known risk factors for miscarriage (see Hotz, McElroy, and Sanders, 2005 and Ashcraft and Lang, 2006). In addition, wave 3 results control for drug use during pregnancy.<sup>9</sup> Including other controls that correlate with abortion outcomes as well as the dependent variable could make the bias worse or change the direction of bias and thus distort the bounds on the estimates (see Ashcraft and Lang, 2006).

2013). Since AddHealth only reports end dates, we use pregnancies that end by age 18 and 9 months. This is the same way Fletcher and Wolfe (2009) define teen pregnancy using AddHealth data. The pattern of results is also robust to extending the sample to include pregnancies that end prior to the age of 20.

<sup>6</sup>These numbers are similar to national statistics as reported in Fletcher and Wolfe (2009).

<sup>7</sup>Labor income is reported earnings from wages, salaries, tips, bonuses, overtime and self employment. If earnings were unknown, respondents were asked to select a range of income that represented their best guess. The middle of these ranges and the bottom of the top range was used in these cases.

<sup>8</sup>Respondents selected a range of values for household income and reported assets. The midpoint of these ranges or the bottom of the top range were used for the values of these variables.

<sup>9</sup>Using certain drugs has also been linked to miscarriages, but this variable is not available for wave 4. The wave 3 results are not sensitive to excluding the control for drug use.

AddHealth provides contextual data from the 2000 Census linked to respondents in wave 3.<sup>10</sup> Two census variables are used to divide the sample by socioeconomic status: the proportion of individuals 25 years and over with less than a high school diploma and median family income by county. Individuals are defined to be from low or high education and income areas based on whether they are above or below the median levels within the sample of pregnant teens.<sup>11</sup> Data are also divided by race and Hispanic or Latino origin as reported by the individual in wave 1.<sup>12</sup>

### III. Empirical Methodology

This paper estimates the impact of teen childbearing on those who become pregnant as teens. This is the effect we would like to measure in order to understand the benefit of policies aimed at preventing teen births. Miscarriages are used to put bounds on the effects of teen childbearing. Hotz, McElroy, and Sanders (2005) developed the use of miscarriages as an instrument for analyzing teen childbearing. They provide evidence that miscarriages are random after controlling for factors such as drinking, smoking, and early contraception.<sup>13</sup> If abortion were not an option, miscarriage serves as a good instrument for no childbearing.

<sup>10</sup>Wave 1 also provides contextual variables which come from the 1990 Census. The results are similar when defining socioeconomic status based on these earlier contextual variables instead of the wave 3 variables.

<sup>11</sup>Results are similar if the whole sample is used to define the median level instead of just the pregnant teen sample.

<sup>12</sup>Categories are defined as Hispanic or Latino, black with no report of Hispanic or Latino, and white with no report of black, Hispanic or Latino. Results are robust to using categories as reported by the interviewer as well.

<sup>13</sup>Ashcraft and Lang (2006) also provide evidence that miscarriages are not correlated to factors that predict later outcomes. In addition, Hotz, Mullin, and Sanders (1997) show that even when a proportion of miscarriages are assumed to be non-random, the estimated bounds reach similar conclusions to results that assume all miscarriages are random.

However, research shows that teens who abort come from more advantaged backgrounds (Ashcraft and Lang, 2006 and Ashcraft, Fernandez-Val, and Lang, 2013). The data presented in Table 1 supports previous findings and shows that teens who have abortions do come from families where parents have higher education and more income. In addition, teens who have abortions score higher on the wave 1 AddHealth Picture Vocabulary Test, a version of the Peabody Picture Vocabulary test which measures scholastic aptitude. Because teens who miscarry are less likely to be the type who abort relative to teens who do not miscarry, they represent more disadvantaged backgrounds. Therefore, the IV estimates are upward biased towards finding no harmful effects of teen childbearing.

Ashcraft and Lang (2006) extend the IV approach by using an OLS estimator on a sample of women who give birth or miscarry as teenagers. Because some women will miscarry before they can have an abortion, the miscarriage sample is now more likely to contain abortion types than the group that gives birth and thus represents more advantaged backgrounds. The OLS estimates on the birth and miscarriage sample are therefore downward biased towards finding harmful effects of teen childbearing. Together, the IV and OLS estimates create bounds for the impact of teen childbearing on those who become pregnant as a teen.<sup>14,15</sup>

This paper uses these previously established methods to create bounds on the

<sup>14</sup>Note that if abortions are negatively selected among some groups, these bounds would reverse. The IV estimate would be downward biased towards findings negative effects while the OLS estimates on the birth and miscarriage sample would be upward biased towards finding benign effects.

<sup>15</sup>Lang and Nuevo (2012) also show that reported miscarriages may be drawn from a more advantaged population because advantaged types are more aware when an early pregnancy has taken place. This would diminish the upward bias of IV estimates and increase the downward bias on the OLS estimates.

effects of teen childbearing. It extends previous analyses by separating the results across socioeconomic status and race, as defined above, to better understand how impacts vary by a teen's background.

## IV. Results

### *A. Impacts of Teen Childbearing Across Socioeconomic Conditions*

Table 2 presents the effects of childbearing on education and labor market outcomes across socioeconomic conditions for individuals who experience teen pregnancies from waves 3 and 4 of the AddHealth data. Wave 3 respondents are in their early 20's during this wave, averaging 22 years old. Wave 4 respondents are in their late 20's during this wave, averaging 28 years old. Panel A divides results based on whether teens come from lower or higher educated counties and panel B divides results based on whether teens come from lower or higher income counties. For each group, the B/MC column presents OLS results on the sample of those who give birth or miscarry and the IV column presents IV estimates on the sample of all pregnant teens with miscarriage as the instrument.

Results in panel A show that teens from less educated counties do not experience any significant negative effects of childbearing. In fact, the point estimates suggest improved effects due to childbearing on most education and labor market outcomes. However, teens from more educated counties who give birth experience significant decreases in schooling attainment and labor income and significant increases in reports of welfare use. Similar results follow in panel B of the table



where teens from low income counties show mostly insignificant but improved outcomes from childbearing while teens from higher income counties show significantly negative impacts from childbearing.

For wave 3, the bounds on schooling suggest that teen births result in almost two thirds to almost a year of lost schooling attainment for those from high educated counties and over three fifths to over four fifths of a year of lost schooling for those from high income counties. The bounds on labor income suggest a reduction of about \$3-5,000 and the bounds on welfare receipt indicate an increase in the probability of using welfare by about 0.2 for those from higher educated or higher income counties. These are large effects since pregnant teens have an average schooling attainment of about 12 years, labor income of \$8,691 and welfare use of 0.33.

The wave 3 estimates for teens from less educated and lower income counties suggest mostly insignificant, but possibly large increases in schooling outcomes and labor income. Upper bounds on high school diploma receipt show increases of up to 14 percentage points, upper bounds on schooling attainment are over half a year and labor income increases range between \$1,169 and \$3,162.

For wave 4, the negative impacts of teen childbearing on education outcomes for those from higher educated areas or higher income areas persists. The bounds suggest almost 0.9 years of schooling lost for teen mothers from high educated areas and almost 0.8 years of lost schooling for teen mothers from high income areas. There is also a large reduction in the probability of receiving a high school

diploma ranging between -0.109 and -0.159 in high education areas and -0.128 and -0.172 in high income areas, although most of these estimates are not statistically significant. The impact on income and welfare receipt suggests negative overall impacts for those from better socioeconomic areas, but the impacts are not as large in magnitude as the wave 3 effects or significant. This corresponds with findings in Hotz, McElroy, and Sanders (2005) where the effect of teen childbearing on earnings outcomes improves over time. Finally, there are also large, but insignificant, decreases in assets.

For those from low educated and low income areas, the wave 4 results continue to suggest no negative impacts and some positive impacts of teen childbearing. The impacts on labor income, household income, and assets are large in magnitude and in some cases significant. In particular, teen childbearing leads to significantly more household income with a range between \$8,450 and \$18,513 for those from low education counties and a range between \$9,529 and \$14,204 for those from low income counties. In addition, while the impacts on labor income and assets are insignificant, they are economically large with magnitudes suggesting increases in income between \$9,482 and \$14,173 and increases in assets between 48 and 83 percent for those from low education counties and increases in income between \$8,446 and \$12,752 and increases in assets between 49 and 79 percent for those from low income counties. Thus, teen childbearing may lead to better financial situations down the road for teens from low socioeconomic status counties.

*B. Impacts of Teen Childbearing Across Race*

Table 3 presents the results separated by race and Hispanic or Latino origin for the wave 3 and 4 samples. These results also suggest that the effects of a teen birth are not uniform. In wave 3, white teens experience negative consequences of childbearing in educational and labor market outcomes with large decreases in years of schooling and labor income as well as significant increases in welfare use. The reduction in years of schooling ranges from 0.57 to 0.84 years, lost income estimates range from \$2,501 to \$3,299, and welfare use increases significantly by between 12 and 14 percentage points. The impacts for black teens are all insignificant and smaller in magnitude, with some of the estimates indicating positive effects. Hispanic and Latino teens experience significantly positive impacts from teen childbearing. In particular, both bounds show significant and large increases in high school diploma receipt as well as labor market income. The estimates suggest increases in high school diploma receipt of 24 to 40 percentage points and increases in income ranging from \$4,330 to \$5,442. While estimates on schooling are insignificant, the magnitudes suggest increases ranging between 0.35 and 0.74 years.<sup>16</sup>

Wave 4 results show that there continue to be negative impacts on educational outcomes for white teens. While the effect on years of schooling is somewhat smaller than in wave 3, the negative effect on receiving a high school diploma

<sup>16</sup>The differences across race do not drive all the differences across socioeconomic status. Even within the race categories, those from better socioeconomic backgrounds see more detrimental effects of childbearing relative to those from worse socioeconomic backgrounds.

is slightly larger in magnitude. For black teens, there is a significant increase in receipt of GED although the magnitude of the increase is similar to the magnitude of the decrease in receiving a high school diploma suggesting that teens may substitute GED receipt for HS diplomas. Finally, the educational impacts for the Hispanic and Latino teens show that the positive effects on high school receipt and schooling seen in wave 3 largely disappear, but that there are no long-run negative impacts.

Again, the results suggest that the impact of teen childbearing on labor income and welfare use fade in the longer run. For white teens, the effect on labor income is no longer negative and the range of effects on household income range from slightly negative to slightly positive, with all estimates insignificant. The impact on assets is not significant, but the range of estimates suggest a reduction of around 26 to 29 percent in assets for white teens who give birth. For black teens, there is a positive impact on labor and household income as well as assets, but the estimates are insignificant with the exception of a significant upper bound impact on household income of \$11,983. For those of Hispanic and Latino origin, the effect on labor income is no longer positive, but household income increases with teen childbearing and there is a large increase in assets with estimates ranging from a 74 to a 171 percent increase. Thus, Hispanic teen mothers appear to be in better long run financial situations relative to those who don't give birth as teens.

*C. Extensions*

One may worry that the heterogeneous results are driven by differences in the timing of fertility for those that have miscarriages. If the comparison groups for women from low socioeconomic counties or minority groups go on to have second pregnancies quickly after their miscarriages while the comparison groups for women from high socioeconomic counties or white populations are able to delay future pregnancies more effectively, the differential timing of births in the comparison groups may be driving some of the heterogeneous effects.

Table 4 illustrates the impact of teen childbearing on birth outcomes across socioeconomic status and race for wave 3. These tables suggest some differences in timing of births across groups. For example, those who experience teen births from high income counties are more likely to have ever given birth, have a lower age at first birth, and have more total births relative to those that experience teen births from low income counties. The differences are not as big for those from low and high education counties or across race, but some differences remain.

To check that the results are not being driven by differential timing of the next birth for those who don't give birth, two different robustness checks are examined. First, patterns do not change if we omit teens who have first pregnancies that do not result in childbearing, but go on to have teen childbirths. Second, patterns do not change if we omit teens who have first pregnancies that do not result in childbearing, but go on to have births within the next 2 years. In both cases, omitting these groups leads to more similar patterns in birth outcomes

across socioeconomic status and race. However, the heterogeneous effects of teen childbearing that we see in the full sample remain in these samples (These results can be seen in tables A1 through A4 in the appendix<sup>17</sup>). Thus, differential timing of future births cannot explain the heterogeneous results.

The differential results may also exist because those from lower socioeconomic areas or minorities have more acceptance, support, or resources for teen births, as teen births are more common among these groups. AddHealth provides useful data to test such theories. First, wave 1 of AddHealth asks students about their attitudes towards teen pregnancy. Questions include stating agreement to whether a pregnancy would embarrass one's family, whether a pregnancy would embarrass the teen, whether a pregnancy would require one to quit school, and whether a pregnancy would lead to marrying the wrong person. Second, AddHealth provides information on the number of pregnant teens in one's school. Finally, the school survey reports on school resources provided to pregnant teens and teen moms such as family planning, pre- or post-natal care, day care, home tutors, and parent courses. Table 5 looks at all of these variables across teens who experience a teen pregnancy, divided by socioeconomic status and race.

The top panel of table 5 suggests that overall attitudes towards teen pregnancy appear slightly less negative for those from lower socioeconomic areas. Teens from lower educated or lower income counties are less likely to report that a pregnancy would be embarrassing and result in quitting school. These teens also

<sup>17</sup>These exercises are also carried out for wave 4 results and the heterogeneous patterns found in the full sample remain in these subsamples.

have more pregnant peers in their schools. However, few of these differences are statistically significant. Differences in attitudes vary some across race as well. White and Hispanic or Latino women are more likely to report that a teen pregnancy would be embarrassing to one's family and result in marrying the wrong person. However, only white women are more likely to report that a pregnancy would be embarrassing to themselves. There are no significant differences across race in reporting that a pregnancy would require quitting school. Finally, white women are less likely to have pregnant peers in their school.

The second panel of the table suggests that there are not consistent differences in school resources provided to teens across socioeconomic status or race. On the whole, those from better socioeconomic areas often have greater resources, but not in all cases and the differences are mostly insignificant. The resources vary some across race but most differences are statistically insignificant. The only significant differences show that white women less likely to have access to a home tutor and black women are less likely to have access to parent courses. Overall, there are no consistent patterns that would suggest access to resources are driving the heterogenous effects of teen childbearing.

## V. Discussion

For teens from less educated and lower income counties and teens in minority groups, poor education and labor market outcomes are not a result of teen childbearing. Instead it is likely that teen childbearing is complimentary with poor

labor market prospects and in these cases teen childbearing may encourage some young women in poor circumstances to get more education and attain better labor market outcomes than they otherwise would have.

It is important to understand this heterogeneity when targeting policy mechanisms directed at reducing teen childbearing. While previous work suggests that such policies may only have modest positive effects on teen outcomes, these results suggest that there could be large positive effects of reducing teen childbearing concentrated among teens who are relatively better off. However, teen pregnancy prevention policies will not help teens who come from poor socioeconomic backgrounds nor will they help black, Hispanic or Latino teens on average. Thus, broad policies targeting all teen pregnancies may not help the populations that they intend to help most. Instead of focussing on reducing childbearing of poor and minority teens directly, results of this paper suggest that policymakers would be better off to first target the conditions that make teen childbearing an optimal choice.



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TABLE 1—SUMMARY STATISTICS

	Wave 3			Wave 4				
	All	Live Births	Miscarriage	Abortions	All	Live Births	Miscarriage	Abortions
<b>Outcomes</b>								
HS Diploma	0.64	0.59	0.60	0.82	0.61	0.53	0.68	0.85
GED	0.13	0.12	0.19	0.10	0.19	0.21	0.21	0.10
High Grade	11.97 (1.849)	11.64 (1.749)	11.95 (1.767)	12.83 (1.889)	12.54 (1.845)	12.23 (1.792)	12.69 (1.567)	13.48 (1.886)
Labor Income	8,691 (10,578)	7,653 (8,582)	8,934 (14,946)	11,290 (11,196)	21,049 (32,811)	19,476 (36,677)	19,359 (26,918)	27,636 (19,106)
Welfare	0.33	0.39	0.35	0.17	0.54	0.60	0.58	0.30
<b>Individual Variables</b>								
Age	22.03 (1.664)	22.13 (1.651)	21.80 (1.603)	21.93 (1.725)	28.60 (1.670)	28.61 (1.642)	28.64 (1.610)	28.52 (1.806)
White	0.55	0.52	0.60	0.59	0.54	0.52	0.69	0.53
Black	0.26	0.30	0.20	0.21	0.27	0.29	0.15	0.26
Hispanic	0.15	0.15	0.17	0.12	0.14	0.15	0.14	0.12
AH PVT	96.80 (12.73)	94.96 (12.43)	97.39 (12.96)	101.17 (12.28)	96.07 (12.77)	94.59 (12.58)	97.72 (12.99)	99.97 (12.33)
<b>Family Background</b>								
Mom Education	12.29 (2.125)	12.02 (1.882)	12.44 (2.280)	12.88 (2.465)	12.12 (2.083)	11.87 (1.990)	12.06 (2.077)	12.95 (2.178)
Dad Education	12.30 (2.151)	11.88 (2.058)	12.33 (1.935)	13.10 (2.256)	12.14 (2.235)	11.70 (2.119)	12.27 (2.012)	13.44 (2.260)
Family Income (Wave 1)	35,345 (30,130)	30,295 (26,071)	38,382 (35,137)	45,290 (32,908)	33,356 (27,192)	29,539 (23,826)	33,973 (28,424)	45,666 (32,792)
<b>Birth Outcomes</b>								
Live Birth	0.61	1	0	0	0.67	1	0	0
Miscarriage	0.16	0	1	0	0.14	0	1	0
Abortion	0.23	0	0	1	0.19	0	0	1

Note: Wave 3 sample includes 1,024 pregnant teens. Wave 4 sample includes 1,171 pregnant teens. Weighted means with standard deviations in parentheses.

TABLE 2—EFFECTS OF TEEN CHILDBEARING ACROSS SOCIOECONOMIC STATUS

	Wave 3 Outcomes							
	Panel A				Panel B			
	Low Education Counties		High Education Counties		Low Income Counties		High Income Counties	
	B/MC	IV	B/MC	IV	B/MC	IV	B/MC	IV
HS Diploma	0.007 (0.087) 388	0.112 (0.110) 495	-0.114 (0.082) 346	-0.041 (0.116) 488	0.027 (0.096) 401	0.142 (0.120) 498	-0.152* (0.079) 333	-0.089 (0.114) 485
GED	-0.066 (0.081) 388	-0.116 (0.102) 495	-0.021 (0.067) 347	-0.049 (0.097) 489	-0.044 (0.080) 400	-0.123 (0.097) 497	-0.020 (0.066) 335	-0.040 (0.098) 487
High Grade	0.132 (0.312) 388	0.617 (0.390) 495	-0.904*** (0.255) 348	-0.644* (0.371) 490	0.000 (0.314) 401	0.460 (0.406) 498	-0.838*** (0.238) 335	-0.604* (0.355) 487
Labor Income	1,169 (1,223) 373	2,117 (1,430) 474	-3,425* (2,001) 332	-3,008 (3,274) 471	1,708 (1,097) 384	3,162** (1,499) 478	-4,950** (1,900) 321	-5,313* (3,046) 467
Welfare	-0.043 (0.067) 386	-0.099 (0.087) 493	0.196*** (0.052) 347	0.196*** (0.067) 489	-0.015 (0.064) 400	-0.069 (0.082) 497	0.221*** (0.058) 333	0.225*** (0.071) 485
	Wave 4 Outcomes							
HS Diploma	-0.090 (0.101) 373	-0.053 (0.127) 480	-0.152 (0.095) 358	-0.109 (0.117) 481	-0.076 (0.094) 393	-0.035 (0.112) 482	-0.172* (0.101) 338	-0.128 (0.127) 479
GED	0.020 (0.076) 373	-0.018 (0.094) 480	0.000 (0.066) 358	-0.034 (0.085) 481	0.007 (0.070) 393	-0.016 (0.085) 482	0.009 (0.070) 338	-0.032 (0.093) 479
High Grade	0.041 (0.362) 373	0.310 (0.464) 480	-0.856*** (0.258) 358	-0.809** (0.322) 481	-0.108 (0.348) 393	0.094 (0.430) 482	-0.832*** (0.278) 338	-0.731** (0.367) 479
Labor Income	9,482 (10,465) 365	14,173 (12,134) 469	-1,994 (2,116) 350	384 (2,905) 473	8,446 (8,429) 381	12,752 (9,468) 467	-2,133 (2,256) 334	153 (3,227) 475
HH Income	8,450 (5,519) 351	18,513** (8,329) 456	-4,937 (4,415) 334	-1,724 (6,034) 451	9,529* (5,320) 368	14,204** (6,565) 455	-3,634 (4,842) 317	1,979 (7,094) 452
Welfare	0.092 (0.078) 373	-0.036 (0.106) 480	0.029 (0.084) 358	-0.039 (0.112) 481	-0.075 (0.078) 393	-0.195* (0.099) 482	0.077 (0.079) 338	0.020 (0.109) 479
ln(Assets)	0.391 (0.305) 338	0.606 (0.395) 439	-0.277 (0.355) 324	-0.154 (0.457) 436	0.398 (0.297) 359	0.581 (0.362) 442	-0.215 (0.362) 303	-0.107 (0.479) 433

*Note:* Controls: Smoking and drinking during pregnancy and conception before age 15 (and drugs during pregnancy for Wave 3). Each cell represents a separate regression with standard errors in parentheses and sample size below the estimate. Add Health sample weights are used.

\*\*\*Significant at the 1 percent level.

\*\*Significant at the 5 percent level.

\*Significant at the 10 percent level.

TABLE 3—EFFECTS OF TEEN CHILDBEARING ACROSS RACE

	Wave 3 Outcomes							
	All		White		Black		Hispanic/Latino	
	B/MC	IV	B/MC	IV	B/MC	IV	B/MC	IV
HS Diploma	-0.055 (0.060) 747	0.047 (0.080) 1,002	-0.131 (0.081) 328	-0.044 (0.105) 440	-0.138 (0.084) 255	-0.094 (0.108) 335	0.243** (0.109) 138	0.404*** (0.140) 178
GED	-0.037 (0.048) 748	-0.080 (0.065) 1,003	-0.029 (0.072) 329	-0.066 (0.096) 441	0.043 (0.026) 254	0.025 (0.033) 334	-0.124 (0.141) 139	-0.193 (0.169) 179
High Grade	-0.463** (0.209) 749	-0.069 (0.288) 1,004	-0.836*** (0.256) 329	-0.572 (0.353) 441	-0.267 (0.357) 255	0.119 (0.504) 335	0.345 (0.360) 139	0.736 (0.491) 179
Labor Income	-1,557 (1,530) 715	-648 (2,256) 961	-3,299 (2,177) 320	-2,501 (3,251) 428	-1,174 (1,984) 238	-711 (2,480) 313	4,330** (1,611) 133	5,442*** (2,036) 173
Welfare	0.108** (0.045) 745	0.075 (0.057) 1,000	0.152*** (0.049) 327	0.133** (0.060) 439	-0.046 (0.114) 254	-0.094 (0.138) 334	0.135* (0.072) 138	0.095 (0.094) 178
	Wave 4 Outcomes							
HS Diploma	-0.170** (0.066) 899	-0.133* (0.079) 1,169	-0.195** (0.086) 417	-0.146 (0.100) 524	-0.181 (0.133) 302	-0.159 (0.167) 399	-0.008 (0.151) 153	0.067 (0.184) 199
GED	0.020 (0.046) 899	-0.008 (0.057) 1,169	0.012 (0.067) 417	-0.030 (0.080) 524	0.162*** (0.043) 302	0.173*** (0.044) 399	-0.072 (0.115) 153	-0.132 (0.149) 199
High Grade	-0.461** (0.204) 899	-0.302 (0.258) 1,169	-0.624** (0.240) 417	-0.525* (0.299) 524	0.124 (0.416) 302	0.452 (0.563) 399	-0.036 (0.362) 153	0.263 (0.450) 199
Labor Income	236 (3,241) 874	2,709 (3,959) 1,141	762 (4,591) 411	3,733 (5,646) 517	1,895 (3,083) 285	4,720 (3,823) 380	-5,764 (4,684) 151	-4,368 (5,795) 197
HH Income	-340 (3,548) 841	5,117 (4,736) 1,102	-2,089 (5,173) 397	1,964 (6,763) 499	5,806 (4,237) 277	11,983** (5,448) 373	6,055 (7,095) 140	19,764* (10,034) 185
Welfare	0.034 (0.056) 899	-0.045 (0.072) 1,169	0.021 (0.082) 417	-0.057 (0.105) 524	0.051 (0.100) 302	0.009 (0.125) 399	-0.073 (0.111) 153	-0.178 (0.144) 199
ln(Assets)	-0.137 (0.208) 813	-0.025 (0.263) 1,066	-0.343 (0.278) 386	-0.297 (0.348) 484	0.119 (0.289) 269	0.334 (0.360) 361	0.555 (0.379) 132	0.996* (0.512) 177

*Note:* Controls: Smoking and drinking during pregnancy and conception before age 15 (and drugs during pregnancy for Wave 3). Each cell represents a separate regression with standard errors in parentheses below the estimate and sample size below that. Add Health sample weights are used.

\*\*\*Significant at the 1 percent level.

\*\*Significant at the 5 percent level.

\*Significant at the 10 percent level.

TABLE 4—TEEN CHILDBEARING EFFECTS ON BIRTH OUTCOMES BY SOCIOECONOMIC STATUS AND RACE (WAVE 3)

	Effects by Socioeconomic Status															
	Panel A				Panel B											
	Low Education B/MC	Low Education IV	High Education B/MC	High Education IV	Low Income B/MC	Low Income IV	High Income B/MC	High Income IV	Low Income B/MC	Low Income IV	High Income B/MC	High Income IV				
Ever Give Birth	0.477*** (0.084) 388	0.423*** (0.109) 495	0.537*** (0.058) 348	0.460*** (0.087) 490	0.387*** (0.076) 401	0.295*** (0.089) 498	0.623*** (0.062) 335	0.593*** (0.091) 487								
Age First Birth	-1.950*** (0.279) 353	-1.821*** (0.297) 394	-2.078*** (0.203) 306	-1.966*** (0.257) 345	-1.854*** (0.225) 367	-1.766*** (0.248) 406	-2.318*** (0.230) 292	-2.188*** (0.253) 333								
Total Births	1.087*** (0.152) 388	1.001*** (0.189) 495	1.075*** (0.116) 348	0.910*** (0.160) 490	0.922*** (0.130) 401	0.740*** (0.167) 498	1.218*** (0.115) 335	1.157*** (0.151) 487								
Effects by Race																
	All				White				Black				Hispanic			
	B/MC	IV	B/MC	IV	B/MC	IV	B/MC	IV	B/MC	IV	B/MC	IV	B/MC	IV	B/MC	IV
Ever Give Birth	0.529*** (0.054) 749	0.464*** (0.073) 1,004	0.553*** (0.068) 329	0.482*** (0.099) 441	0.517*** (0.119) 255	0.505*** (0.154) 335	0.494*** (0.113) 139	0.471*** (0.150) 179								
Age First Birth	-2.036*** (0.182) 670	-1.892*** (0.213) 751	-2.188*** (0.215) 293	-2.031*** (0.260) 327	-1.771*** (0.220) 232	-1.645*** (0.257) 261	-1.686*** (0.333) 122	-1.643*** (0.410) 135								
Total Births	1.093*** (0.095) 749	0.967*** (0.126) 1,004	1.140*** (0.112) 329	1.009*** (0.151) 441	1.178*** (0.235) 255	1.122*** (0.293) 335	0.748*** (0.169) 139	0.655*** (0.214) 179								

Note: Controls: Smoking, drinking and drugs during pregnancy and conception before age 15. Each cell represents a separate regression with standard errors in parentheses below the estimate and sample size below that. Add Health sample weights are used.

\*\*\*Significant at the 1 percent level.

\*\*Significant at the 5 percent level.

\*Significant at the 10 percent level.

TABLE 5—ATTITUDES AND RESOURCES ACROSS SOCIOECONOMIC STATUS AND RACE

	Socioeconomic Status				Race		
	Low Education	High Education	Low Income	High Income	White	Black	Hispanic/Latino
Pregnancy Embarrass Family	0.412 (0.493)	0.472 (0.500)	0.405 (0.492)	0.480 (0.500)	0.490 (0.501)	0.309*** (0.463)	0.576** (0.496)
Pregnancy Embarrass You	0.378 (0.486)	0.465 (0.500)	0.362 (0.481)	0.480** (0.500)	0.488*** (0.501)	0.342*** (0.475)	0.358 (0.482)
Quit School if Pregnant	0.085 (0.279)	0.139* (0.346)	0.095 (0.294)	0.133 (0.340)	0.129 (0.336)	0.095 (0.294)	0.097 (0.297)
Marry Wrong Person	0.257 (0.437)	0.217 (0.413)	0.229 (0.421)	0.238 (0.426)	0.268* (0.444)	0.138*** (0.346)	0.284 (0.453)
Number Pregnant at School	16.44 (30.93)	12.78 (15.42)	16.75 (30.37)	12.42 (15.57)	10.21* (13.58)	22.86 (37.51)	14.22 (19.25)
Family Planning Counseling	0.127 (0.724)	0.410 (1.649)	0.472 (1.888)	0.147 (0.622)	0.361 (1.526)	0.036 (0.185)	0.448 (1.700)
Pre/Post Natal Care	0.062 (0.241)	0.156 (0.363)	0.115 (0.319)	0.118 (0.323)	0.100 (0.301)	0.104 (0.305)	0.171 (0.377)
Day Care	0.175 (0.381)	0.180 (0.385)	0.197 (0.398)	0.164 (0.370)	0.154 (0.361)	0.200 (0.401)	0.241 (0.429)
Home Tutor	0.260 (0.439)	0.544 (1.502)	0.249 (0.433)	0.560 (1.520)	0.238* (0.671)	0.392 (0.886)	1.101 (2.210)
Parent Courses	0.134 (0.341)	0.629** (1.498)	0.212 (0.409)	0.585 (1.526)	0.332 (0.702)	0.222** (0.848)	0.950 (2.266)

*Note:* Stars indicate significant differences across low and high socioeconomic groups or significant differences from one's racial group relative to all others.

\*\*\*Significant difference at the 1 percent level.

\*\*Significant difference at the 5 percent level.

\*Significant difference at the 10 percent level.

## APPENDIX

TABLE A1—EFFECTS OF TEEN CHILDBEARING ACROSS SOCIOECONOMIC STATUS (ROBUST NO TEEN BIRTH - WAVE 3)

	Panel A				Panel B			
	Low Education Counties		High Education Counties		Low Income Counties		High Income Counties	
	B/MC	IV	B/MC	IV	B/MC	IV	B/MC	IV
HS Diploma	-0.095 (0.082) 373	-0.011 (0.103) 472	-0.103 (0.091) 332	-0.003 (0.124) 462	-0.042 (0.094) 380	0.058 (0.120) 469	-0.136 (0.086) 325	-0.048 (0.119) 465
GED	0.037 (0.046) 373	0.012 (0.064) 472	-0.057 (0.076) 333	-0.100 (0.107) 463	0.023 (0.071) 379	-0.042 (0.090) 468	-0.038 (0.072) 327	-0.065 (0.104) 467
High Grade	-0.001 (0.316) 373	0.467 (0.404) 472	-0.977*** (0.257) 334	-0.629* (0.376) 464	-0.082 (0.324) 380	0.405 (0.425) 469	-0.880*** (0.258) 327	-0.565 (0.379) 467
Labor Income	935 (1,437) 359	1,817 (1,796) 452	-4,889** (2,417) 318	-4,727 (3,712) 445	1,555 (1,402) 364	3,048 (1,936) 450	-5,597** (2,302) 313	-5,938* (3,448) 447
Welfare	0.004 (0.071) 371	-0.034 (0.087) 470	0.250*** (0.048) 334	0.258*** (0.055) 464	0.022 (0.069) 379	-0.008 (0.087) 468	0.256*** (0.052) 326	0.263*** (0.058) 466

*Note:* Controls: Smoking, drinking and drugs during pregnancy and conception before age 15. Each cell represents a separate regression with standard errors in parentheses and sample size below the estimate.

Add Health sample weights are used.

\*\*\*Significant at the 1 percent level.

\*\*Significant at the 5 percent level.

\*Significant at the 10 percent level.



TABLE A2—EFFECTS OF TEEN CHILDBEARING ACROSS RACE (ROBUST NO TEEN BIRTH - WAVE 3)

	All		White		Black		Hispanic	
	B/MC	IV	B/MC	IV	B/MC	IV	B/MC	IV
HS Diploma	-0.082 (0.064) 718	0.018 (0.082) 953	-0.140 (0.092) 315	-0.045 (0.119) 419	-0.185** (0.075) 249	-0.139 (0.091) 321	0.245* (0.135) 128	0.355** (0.159) 166
GED	-0.020 (0.053) 719	-0.056 (0.071) 954	-0.044 (0.085) 316	-0.091 (0.111) 420	0.053* (0.030) 248	0.035 (0.041) 320	0.015 (0.102) 129	-0.010 (0.116) 167
High Grade	-0.566*** (0.214) 720	-0.154 (0.292) 955	-0.993*** (0.275) 316	-0.719* (0.381) 420	-0.191 (0.344) 249	0.269 (0.505) 321	0.393 (0.394) 129	0.830* (0.463) 167
Labor Income	-2,593 (1,961) 687	-1,983 (2,770) 913	-4,828* (2,691) 307	-4,545 (3,905) 407	-721 (2,048) 232	-183 (2,551) 299	3,561* (2,019) 124	4,258* (2,392) 162
Welfare	0.162*** (0.043) 717	0.148*** (0.051) 952	0.183*** (0.048) 315	0.180*** (0.058) 419	0.061 (0.096) 248	0.030 (0.112) 320	0.165* (0.082) 128	0.165* (0.092) 166

*Note:* Controls: Smoking, drinking and drugs during pregnancy and conception before age 15. Each cell represents a separate regression with standard errors in parentheses below the estimate and sample size below that. Add Health sample weights are used.

\*\*\*Significant at the 1 percent level.

\*\*Significant at the 5 percent level.

\*Significant at the 10 percent level.

TABLE A3—EFFECTS OF TEEN CHILDBEARING ACROSS SOCIOECONOMIC STATUS (ROBUST NO BIRTH W-IN  
2 YEARS - WAVE 3)

	Panel A				Panel B			
	Low Education Counties		High Education Counties		Low Income Counties		High Income Counties	
	B/MC	IV	B/MC	IV	B/MC	IV	B/MC	IV
HS Diploma	-0.045 (0.093) 366	0.054 (0.115) 463	-0.071 (0.088) 326	0.026 (0.126) 455	0.024 (0.103) 375	0.133 (0.129) 462	-0.122 (0.080) 317	-0.040 (0.117) 456
GED	0.035 (0.051) 366	0.007 (0.069) 463	-0.049 (0.072) 327	-0.094 (0.100) 456	0.015 (0.076) 374	-0.044 (0.096) 461	-0.029 (0.065) 319	-0.060 (0.094) 458
High Grade	0.131 (0.324) 366	0.646 (0.415) 463	-0.993*** (0.309) 328	-0.775* (0.461) 457	0.047 (0.348) 375	0.521 (0.459) 462	-0.936*** (0.300) 319	-0.729 (0.454) 458
Labor Income	669 (1,342) 352	1,561 (1,727) 443	-4,715* (2,801) 313	-5,121 (4,333) 439	1,488 (1,377) 359	2,714 (1,740) 443	-5,871** (2,744) 306	-6,754 (4,290) 439
Welfare	0.007 (0.077) 364	-0.033 (0.095) 461	0.251*** (0.048) 328	0.264*** (0.062) 457	0.053 (0.080) 374	0.016 (0.096) 461	0.249*** (0.052) 318	0.258*** (0.064) 457

*Note:* Controls: Smoking, drinking, and drugs during pregnancy and conception before age 15. Each cell represents a separate regression with standard errors in parentheses and sample size below the estimate. Add Health sample weights are used.

\*\*\*Significant at the 1 percent level.

\*\*Significant at the 5 percent level.

\*Significant at the 10 percent level.

TABLE A4—EFFECTS OF TEEN CHILDBEARING ACROSS RACE (ROBUST NO BIRTH W-IN 2 YEARS - WAVE 3)

	All		White		Black		Hispanic	
	B/MC	IV	B/MC	IV	B/MC	IV	B/MC	IV
HS Diploma	-0.040 (0.064) 705	0.068 (0.084) 937	-0.110 (0.090) 310	-0.014 (0.119) 413	-0.131 (0.088) 244	-0.081 (0.113) 316	0.265* (0.136) 125	0.370** (0.159) 162
GED	-0.017 (0.049) 706	-0.051 (0.067) 938	-0.033 (0.074) 311	-0.071 (0.099) 414	0.059 (0.040) 243	0.025 (0.051) 315	0.013 (0.106) 126	-0.011 (0.119) 163
High Grade	-0.513** (0.238) 707	-0.129 (0.332) 939	-0.906*** (0.293) 311	-0.680 (0.414) 414	-0.234 (0.448) 244	0.187 (0.672) 316	0.468 (0.388) 126	0.908* (0.455) 163
Labor Income	-2,523 (2,138) 675	-2,109 (3,059) 898	-4,504 (2,931) 302	-4,259 (4,268) 401	-1,057 (2,149) 228	-1,054 (2,770) 295	3,935* (1,983) 121	4,654* (2,347) 158
Welfare	0.167*** (0.045) 704	0.152*** (0.056) 936	0.183*** (0.051) 310	0.166*** (0.062) 413	0.032 (0.105) 243	0.004 (0.128) 315	0.163* (0.083) 125	0.163* (0.092) 162

*Note:* Controls: Smoking, drinking and drugs during pregnancy and conception before age 15. Each cell represents a separate regression with standard errors in parentheses below the estimate and sample size below that. Add Health sample weights are used.

\*\*\*Significant at the 1 percent level.

\*\*Significant at the 5 percent level.

\*Significant at the 10 percent level.