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EDUCATION AND LABOR MARKET CONSEQUENCES OF TEENAGE CHILDBEARING:
EVIDENCE USING THE TIMING OF PREGNANCY OUTCOMES AND COMMUNITY FIXED EFFECTS

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ABSTRACT

The question of whether giving birth as a teenager has negative economic consequences for the mother remains controversial despite substantial research. In this paper, we build upon existing literature, especially the literature that uses the experience of teenagers who had a miscarriage as the appropriate comparison group. We show that miscarriages are not random events, but rather are likely correlated with (unobserved) community-level factors, casting some doubt on previous findings. Including community-level fixed effects in our specifications lead to important changes in our estimates. By making use of information on the timing of miscarriages as well as birth control choices preceding the teenage pregnancies we construct more relevant control groups for teenage mothers. We find evidence that teenage childbearing likely reduces the probability of receiving a high school diploma by 5 to 10 percentage points, reduces annual income as a young adult by $1,000 to $2,400, and may increase the probability of receiving cash assistance and decrease years of schooling.

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Introduction

The issue of the economic consequences of teenage childbearing for young women has been the subject of a great deal of debate. Early estimates suggested large consequences in terms of reduced schooling, increased take-up of cash assistance, and lower earnings (see below). Subsequent studies, however, provide evidence that these consequences, if they exist at all, are small. The "explanation" offered is that the adolescents who give birth as teens would have a life trajectory of limited education and earnings even if they had not given birth as a teen. To correctly answer the question of the consequences of teenage childbearing, one requires an accurate measure of the *counterfactual*—what would have happened to the young woman had she not given birth as a teen. This is difficult, as we observe each individual in only one situation, either as a person who gave birth as a teen or one who did not. Recent studies employ an instrumental variable approach making use of a group of adolescents who, though pregnant as teens, did not give birth. These studies focus especially on teens who miscarried in an attempt to obtain improved estimates (see for example Hotz, McElroy, Sanders 2005). Still others use propensity score matching in an attempt to create an appropriate comparison group (for example, Lee 2007).

In this paper we make use of a rich data set on a group of young women and estimate both OLS and instrumental variables models employing alternative comparison groups, in an attempt to more accurately measure the counterfactual. Our contribution is to add measures of the social environment of the teen and the use of timing of miscarriages/stillbirths to address the determinants of outcomes of teen pregnancy and to obtain more accurate estimates of the effect of giving birth as a teen on subsequent

outcomes. We find evidence that having a child as a teenager likely reduces the probability of receiving a high school diploma by 5 to 10 percentage points and reduces income as a young adult by $1,000 to $3,000 in the year of the survey. We find some suggestive evidence that teenage childbearing increases the probability of receiving cash assistance and slightly decreases years of schooling. Our results also suggest the difficulty of estimating the causal effects of teenage childbearing due to the challenge of constructing a relevant control group as well as the need to control for community-level factors that likely are associated with having a pregnancy, the birth outcome of the pregnancy, and early adult labor market and human capital outcomes.

Background

The initial or simple approach to estimating the consequences of teenage childbearing on the mother uses a straightforward OLS regression specification with some controls for background information to estimate the impact. Studies that use this approach typically find the consequences of teenage childbearing to be large and significant. For example, Moore and Waite (1977) find that teenage mothers complete 1 to 4 fewer years of school than other women by age 24. A second generation of studies attempts to account for the choice of timing of births and find considerably less tie between giving birth as a teen and subsequent schooling.[1] A third generation of studies uses an instrumental variable approach to compare outcomes and generally find no negative effect of giving birth as a teen on level of schooling or a counterintuitive positive influence (Hotz et al. 2005) (henceforth HMS). The unique or clever insight of

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[1] See Ribar 1994 for a review of this literature. A related literature on the determinants of teen births also provides evidence that those who give birth are a self-selected group. See, for example, Wolfe, Haveman, Pence, & Schwabish 2007.

HMS is to compare those who gave birth as teens to those who miscarry, a group who presumably would have carried to term if able to do so. Those who miscarry thus are used as the counterfactual.[2]

Ashcraft and Lang (2006) (henceforth AL) go a step further than previous third-generation papers in that they recognize that some of those who miscarry would have had an abortion had they not miscarried. As such, they should not serve as appropriate models for the "counterfactual." AL present evidence that many miscarriages are earlier than abortions, which suggests that assuming that individuals who miscarry are a valid counterfactual group for those who give birth is problematic. They then use an instrumental variable approach to narrow the possible range of effects--first assuming all miscarriages occur before abortion decisions and then assuming all abortions occur before miscarriages. Finally, AL use standard OLS and IV specifications but alternate between several comparison groups to further narrow the bounds of the estimates.[3] They find a small but negative effect of giving birth as a teen on subsequent schooling, especially on obtaining a GED. Their results that assume all abortions occur before miscarriages are similar to those of HMS for years of schooling.

We build on the work of AL and all the others who came before us using miscarriage as an instrument. However, we test for the sensitivity of whether some

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[2] The small number of teenagers (69 individuals) who report a miscarriage and the accuracy of reports of abortions, miscarriages, and pregnancies in the NLSY data are two critiques of this approach. See Hoffman 2003 for others.

[3] AL's first use all individuals who became pregnant but did not give birth as the comparison group (including miscarriages and abortions). This estimate for childbearing should provide the upper bound on the negative effects of teen childbearing since those who had an abortion self-select out of bearing a child as a teen. AL next present results where only individuals who miscarried serve as the comparison group. Since the miscarriage group comprises individuals who would have carried the birth to term and those who would have received an abortion, the results are still expected to be biased toward finding negative effects of teenage childbearing but less so than the first comparison. Finally, AL estimate IV specifications that are expected to be biased toward finding positive effects. The range of estimates across specifications AL present (OLS for the upper bound on negative effects and IV specifications for the lower bound) should bound the true effect.

teenagers who have a miscarriage would have had an abortion. We do so making use of our data on the timing of the termination of a pregnancy (by abortion or miscarriage). We also add information on the environment in which these pregnancy outcomes occur to this analysis. Specifically, we use several measures of the teenager's environment, including the pregnancy outcomes of other teenagers in her community, measures of community disadvantage, and state laws affecting access to abortion. In order to clarify the influence of giving birth as a teen on her subsequent well-being we include a broad set of human capital outcome measures including three indicators of schooling, earnings, receipt of welfare and income. Finally, we make use of our information on whether the adolescent was practicing birth control at the time of the fertilization as a measure of whether or not she actively sought to prevent the pregnancy.

Data

The data we use in our analysis are from the restricted version of the National Longitudinal Study of Adolescent Health (Add Health). We use only young women who were pregnant as an adolescent in our analysis. There are 4,943 pregnancies reported by women in our sample by Wave III of data collection (when the respondents were on average 22 years old). We limit our analysis sample by focusing on first pregnancies (leaving 3,633 pregnancies) and on pregnancies that ended before age 18 years and 9 months (leaving 1,089 observations). We then exclude 18 women who report still being in high school, 15 women who gave birth to only one twin and 2 women whose pregnancy had not ended at the time of the interview, leaving 1,054 observations. We combine reported miscarriages and still-births into one category—"miscarriages."

Omitting those with missing community-level data leave us a sample of approximately 1,000 though this varies slightly by outcome. We impute data for parental education and family income for nearly 300 individuals and include a dummy variable for individuals with missing data. For community-level variables, we include state-level information on abortion laws and funding levels (merged from data reported in the 1995 version of the National Abortion Rights Action League (NARAL) publication "Who Decides? A State-by-State Review of Abortion Rights.") and Census information on the proportion of individuals in poverty as well as other measures, including the education level of census tract 'neighbors', that was merged from the Summary Tape File of the 1990 Census of Population and Housing. In addition, we construct measures of the proportion of all pregnancies in the each community that are resolved as live births, miscarriages, and abortions (excluding the individual from the calculation). These proportions attempt to measure unobserved community-level factors that increase the likelihood of each pregnancy outcome.

The adolescents who serve as our controls or counterfactuals are those who report a miscarriage while a teen. Our primary analysis focuses on this group. However, a number of these adolescents might have chosen to have an abortion had they not had a miscarriage. Hence, we also conduct an analysis in which only those who had a "late" miscarriage serve as the control group. This reduces the possible bias on comparing those who gave birth to those who would have terminated their pregnancy in the absence of a miscarriage. As noted by AL and confirmed in our own analysis, teens who terminate their pregnancy through an abortion tend to come from higher SES families. Hence, including them as controls in the miscarriage group would likely bias the results

on the consequences of giving birth as a teen toward an underestimate of the "true" effect. By using both of these two comparison or control groups, we believe we narrow the range of estimates of the effect of giving birth while a teen on SES outcomes as young adults.

Table 1 provides basic summary statistics for our sample. Conforming with other national data sets, pregnancies end in live births, abortions, and miscarriages (or stillbirths) for 59%, 25%, and 16% of our sample, respectively. Since potential biases in self-reports of pregnancy outcomes have been raised in previous work (for example, Hotz et al. 2005), two differences in the Add Health data are worth noting. First, respondents in the Add Health survey used computer-assisted personal interview (CAPI) technology, where sensitive questions were answered using a laptop rather than verbally indicated to the interviewer. This feature of the survey design is in contrast with other surveys for which biases in self-reported pregnancy outcomes have been shown (for example, the National Survey of Family Growth, National Longitudinal Study of Youth). Second, the self-reported pregnancy outcomes in Add Health match more closely with official Vital Statistics than other datasets. For example, 25% of first pregnancies are reported to end in abortion and 16% end in miscarriage, compared with (only) 18% and 7%, respectively, in Hotz et al. (2005).

Of the women in our sample (who have all experienced a teen pregnancy), 68% receive a high school diploma and 13% receive a GED. Thirteen percent receive cash assistance as a young adult and 40% report using birth control before their pregnancy.

Table 2 stratifies the summary statistics by each of the pregnancy outcomes and also by the timing of miscarriages into "early" and "late," which is categorized based on

eight weeks, the modal timing of a miscarriage in our data (full summary statistics can be found in appendix tables 1A-5A). The raw means suggest that even conditional on this sample of women who experienced a teen pregnancy; those who elected to have an abortion were more advantaged than those who had a miscarriage or live birth. Women who had an abortion scored higher on an achievement test (Peabody Picture Vocabulary Test), were from families with higher incomes, had more educated parents, and lived in communities with lower poverty rates than women who miscarried or had a live birth.

When we divide the sample of miscarriages between early and late miscarriages, there is evidence that some individuals who had an early miscarriage may have had an abortion rather than a live birth. While these two groups have very similar demographics, the individuals who experienced an early miscarriage were more likely to have used birth control prior to getting pregnant. On the other hand, individuals who experienced a late miscarriage are slightly more advantaged, as measured by several family background variables.

Methodology

Our interest is in identifying the true effect of giving birth as a teen on outcomes as a young adult. That is, we wish to estimate

$$Y = \alpha + \beta B + \mu \qquad\qquad (1)$$

where Y is the outcome of interest such as years of schooling or earnings as a young adult, B is an indicator of giving birth as a teen, and β is the coefficient of interest. The "core problem" is that those who give birth may differ in systematic ways from those

who do not and these systematic differences are also likely to determine the outcome. The β estimated this way would overestimate the true influence of giving birth on Y.

The simplest way to handle this is to add other control variables to the equation. These might include background factors such as the SES of the family in which the teen was raised, race/ethnicity, and perhaps some community variables. Equation 1 then becomes:

$$Y = \alpha + \beta\, B + \theta\, X + \mu \qquad\qquad (2)$$

where X is the vector of additional control variables.

However, this still leaves unobserved factors that may influence those who become pregnant, those who choose to give birth, and the outcome. That is, this estimation strategy may still not accurately allow the researcher to identify β.

Our approach is to limit the sample only to those who became pregnant as a teen, thus identifying the influence of the birth only over those who are "similar" in that they shared the experience of being pregnant by age 18. This eliminates a good deal of the unobserved differences between treatment and control groups. Furthermore, we limit the comparison to those who "chose" not to voluntarily terminate the pregnancy, that is, we compare those who gave birth to those who had a miscarriage. Since some of those who had a miscarriage might have chosen to have an abortion and thus would systematically differ from those who gave birth, we make two alternative assumptions and thus provide a narrow range for our estimate of β: (1) all those who had a miscarriage or stillbirth would not have chosen an abortion and (2) all those who had a *late* miscarriage would not have chosen to have an abortion. In the latter case, we avoid making an assumption of those who had a miscarriage early by omitting them from the comparison group.

Finally we make use of the school-based design of our dataset by adding community fixed effects to the analyses. This is based on from 60 to 75 communities with an average of 5 to 10 observations per community. We first provide evidence that community-level factors are associated with the probability of having a miscarriage. Thus, previous results found in the literature that use miscarriage as an instrument are likely biased. We then show that controlling for community fixed effects changes the results in both the OLS and IV specifications of outcomes of teen childbearing in important ways.

Estimation Results

Determinants of Pregnancy Outcomes

Since previous researchers have argued that miscarriages can be considered (conditionally) random, we examine this assumption using our data. In Table 3, we first estimate the determinants of the outcome of each teen pregnancy using the full sample of teens who were pregnant employing multinomial logistic regression. The three possible outcomes are give birth, abortion, or miscarriage (omitted category). The results indicate that the choice of abortion is not random but indeed is made by those from more advantaged backgrounds. For example, those who have an abortion tend to have higher Peabody Picture Vocabulary test scores, reside in communities with lower poverty levels, and have parents with more education compared to those who give birth, findings that are consistent with those of An, Haveman, and Wolfe (1993). If they live in a state with public funding for abortions, they are also more likely to have an abortion. Consistent with the literature (see, for example, Coleman 2006), blacks are less likely to have a

miscarriage (though this estimate is not statistically significant) than are adolescents who are white or Hispanic. Like AL, we find evidence that smoking during pregnancy increases the risk of miscarriage in our data, and find that drinking and drug use also appear to predict birth outcomes. Comparing the probability of miscarriages to live births, we find that the proportion of miscarriages in the community is negatively associated with an individual's probability of giving birth or of having an abortion. These results suggest that there could be unmeasured community-level factors that influence the probability of miscarriage, so that the assumption that miscarriages are conditionally random is likely not valid without controlling for community-level factors. In our analysis of the effects of teenage childbearing on life outcomes, we present results that use community-level fixed effects.

The Effects of Teenage Childbearing on Adult Outcomes

We now estimate the effects of teenage childbearing on education and labor market outcomes using several alternative specifications and samples. In Table 4, we present results using OLS and 2SLS techniques. As noted in AL, controlling for characteristics (for example, race, parental education) that are correlated with both the outcomes of interest as well as birth outcomes could easily worsen or change the sign of the bias in our estimating equations; therefore we follow AL and only control for factors that have been cited in the medical or economics literature as being risk factors for miscarriage, including whether the pregnancy occurred before age 15 and whether the

teenager smoke, drank alcohol, or used drugs during the pregnancy (for example , Garcia-Enguidanos et al. 2002; Ashcraft and Lang 2006; Hotz et al. 2005).[4]

First, in columns 1 and 2, we follow the "second-generation" papers outlined above and compare the outcomes of young women who gave birth with young women who did not give birth (but had teenage pregnancies). Column 2 adds community-level fixed effects to the specifications of column 1. Comparing across these two columns, community-level fixed effects estimates show a decrease in the estimated effects of teenage childbearing by 10 to 20% (with the exceptions of GED and total income). Column 2 shows that teenage childbearing is negatively associated with receipt of a high school diploma (16 percentage points), years of education (0.8 years), household income ($2,700), and labor income ($2,500) at Wave 3. Teenage childbearing appears to increase the likelihood of welfare receipt by 8.5 percentage points and has no discernable relationship with GED receipt. However, as other researchers have suggested, specifications like those in columns 1 and 2 are biased toward finding negative effects of teenage childbearing because we are comparing disadvantaged mothers with more advantaged women, although here only with those who were also pregnant as teenagers and lived in the same communities. Finally, in column 2 below the coefficient, standard errors and number of observations we present p-values from F-tests of the joint hypothesis that the coefficients on our community fixed effects are equal to zero and a Hausman test that compares our coefficients across specifications with and without

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[4] Tobacco (in particular, nicotine) is thought to produce vascular spasms, resulting in placental pathology (Brent & Beckmann 1994). For alcohol, while there is some mixed evidence relating moderate alcohol consumption to miscarriage, Abel (1997) showed that high blood alcohol levels could directly provoke miscarriage. Finally, while marijuana use has not been conclusively tied to miscarriage, cocaine use and heroin use are less controversial determinants of miscarriage (for example, Chasnoff, Burns, Schnoll, & Burns 1985).

community fixed effects. For all three education outcomes and welfare receipt our community level fixed effects are jointly statistically significant at the 5% level; for wages at the 7% level. Our Hausman tests show evidence of statistically different coefficient estimates for high school diploma and years of schooling, but in other cases, the coefficients are similar. Since these results suggest strong but not overwhelming support for the value of our community fixed effects strategy we present our estimates including and excluding community fixed effects in our following tables.

Columns 3 and 4 in Table 4 show results for two-stage least square specifications, where we follow HMS and AL and use miscarriage as an instrument for live births. AL shows that these specifications should be biased toward finding beneficial effects of teenage childbearing. Indeed, our results suggest that there is no statistically significant relationship between teenage childbearing and any of the education and labor outcomes we examine. Importantly, though, several results suggest that our bounds of the true effect (where columns 1 and 2 provide the upper bound and columns 3 and 4 provide the lower bound) are relatively tight.

Columns 5 and 6 show results that use OLS to estimate the relationship between teenage childbearing and our set of outcomes, but constrain the control group to comprise only individuals who experienced a miscarriage (rather than combining miscarriage and abortion). This is one of our preferred specifications. As expected, the magnitudes of the coefficients change considerably (most by more than 20%) when constraining the control group to miscarriages (column 1 versus column 5). Further, the results in column 6 suggest that including community fixed effects also considerably changes the basic results. In particular, we estimate much lower effects of teen childbearing on welfare

receipt (11 versus 3 percentage points) and years of schooling (0.5 years versus 0.12 years) after adjusting the birth/miscarriage estimates for community fixed effects. In contrast, the relationships between teenage childbearing and wages, income, and high school completion are relatively stable after controlling for community fixed effects, suggesting a small decrease in the probability of high school completion (-0.09) and lower income and earnings of $2,700 and $2,400 annually, respectively (the latter are not statistically significant at standard levels). Finally, in columns 7 and 8, we use "late" miscarriages as our comparison group, which we define as a miscarriage after 8 weeks— the modal length of pregnancies ending in miscarriage in our data. We perform this analysis in a further attempt to compare pregnant women who would have given birth (had they not experienced a miscarriage) with women who completed their pregnancies. As noted above, using all women who miscarry as the comparison may include some women who would have had an abortion had they not experienced an 'early' miscarriage. Once again the results for the relationship between teen childbearing and wages and income are quite consistent with the earlier ones and suggest a substantial reduction in both tied to teen childbearing. In this case, the estimates controlling for community characteristics (FE) exceed those that do not and suggest a reduction of $2,800 in wages and nearly $3,000 in family income. None of the other results are statistically significant although the point estimates suggest a very modest reduction in the probability of obtaining a high school degree.

Robustness Checks

To further examine the robustness of our results, we examine specifications that stratify our results based on birth control choices predating the pregnancy. In Table 5, we re-estimate our previous table using first the entire miscarriage group (columns 1 and 2) and then those with only a late miscarriage (columns 3 and 4) as our control group.

Here our focus is on whether those who used birth control, and thus would appear to wish to prevent a pregnancy, are different in terms of future consequences.[5] Thus we stratify our results by use of birth control prior to pregnancy to compare results for women who were actively attempting to prevent pregnancy and those who were not (see Table 6 and Table 6A for full results and a comparison based on birth control use).[6] Like Table 4, our results seem to be most robust for the outcomes of income and wages for those who used birth control but are much weaker for those who did not. Thus these results suggest a larger negative influence on wages and family income for those teens who had been using birth control prior to becoming pregnant compared to all teens that gave birth. This is the case even though the number of observations is considerably smaller than for the entire group of teens. Furthermore the estimated influence is somewhat reduced when we use community controls via FE but still suggest a reduction in excess of $3,000 for total income and nearly $3,500 for wages. We find small and imprecisely measured effects on years of schooling and negligible effects on welfare receipt. This estimation then suggests that those who use birth control have an idea that they will face substantial negative consequences should they become pregnant and carry

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[5] Teenage girls who use birth control might be thought of as having a joint preference for being sexually active but wishing to avoid becoming pregnant. This fits with the idea of rational choice. For other evidence on rational choice of teens, see, for example, Wolfe, Haveman, Pence, & Schwabish (2007) and Haveman, Wolfe, & Wilson (2001).
[6] While we report these results using whether or not the individual reports using birth control, we do not emphasize them as some of the samples are quite small. We are also hesitant as those who do not use birth control may be quite heterogeneous including teens who wished to become pregnant with those who did not plan to be sexually active.

the pregnancy to term. These consequences appear most significant for wages and income.

We also ran a similar set of regressions on those teens who gave birth as a teen and did not marry within a year of giving birth. In this we exclude those who married and thus might be expected to have more positive outcomes or to have been more likely to adjust to the birth of the child. For these results we include 848 of the 936 who are in the larger set. These results (shown in appendix Table 7A) suggest a similar pattern to those of the overall group, although the coefficients are somewhat smaller than for the larger group of women. For example, the coefficient using FE is -2,282 for total income and -1,740 for wages for those who did not marry within a year compared to -2,710 and -2,375, respectively, for the larger sample. We also ran results that control only for age and whether the pregnancy began before age 15 so that several endogenous health behaviors (smoking, drinking, and drug use during pregnancy) are excluded. We found that the main results do not substantially differ with our preferred set of results in Table 7. (See appendix Table 8A for full results).

Finally, we attempted to explore the community determinants of our labor and education outcomes that might underlie the important differences we find when using our FE approach. Here we include variables such as the poverty rate, crime rates, education level of the community, community income, ratio of young adult females to males in the community, and other variables shown in our tables. Results are presented in Table 9A in the appendix. While as a set these community variables are generally statistically significant (the exception is for welfare receipt) they do little to truly explain what it is about a particular community that seems to influence the education, labor force, and

income outcomes of teen mothers. Our community fixed effects results generally show that there are important community factors at work in influencing such outcomes and that excluding them from the analysis may well lead to biased results. Unfortunately, we have not been able to identify what it is about these communities that seems to matter.

Conclusion

In this paper, we build on previous research to examine the short-term human capital and labor force consequences of teenage childbearing. We advance the literature in several ways. First, we show that previous 2SLS estimates using miscarriages as the instrument are likely biased. In particular, we present evidence that unobserved community-level characteristics are correlated with the probability of experiencing a miscarriage, which suggests the importance of including community fixed effects when estimating the consequences of teenage childbearing. In fact, we show that controlling for community fixed effects in several cases substantially changes our estimates. Second, we use the information on the timing of miscarriage as well as reports of birth control use prior to pregnancy to create relevant control groups for the women who have children while teenagers. Our most reliable estimates (see column 6 in Tables 4 and 5) provide some evidence that giving birth as a teen is associated with a decline in the probability of graduating from high school (-0.08) and a reduction in income and total wages of $2,200 to $2,400.

Our results indicate the difficulty of estimating the causal effects of teenage childbearing in many datasets that do not allow the use of community fixed effects and/or have sufficient information from which to construct the relevant control groups. Using

our rich dataset, we are able to provide relatively tight estimates of bounds of the causal

effect of teenage childbearing on human capital and labor force outcomes. We find

consistent evidence that teenage childbearing likely lowers the probability of receiving a

high school diploma by a small amount but more significantly decreases household

income and labor income of women in their early twenties. Our final table, Table 7,

brings together our results. In Table 7, we provide a clear comparison of second-

generation estimates, third-generation estimates, and our preferred estimates that use

community fixed effects as well as information on the timing of miscarriage. We show

that in many cases, our preferred specifications substantially narrow the bounds on the

estimates of the effects of teenage childbearing. For example, in the case of receiving a

high school diploma, second-generation methods produce an estimate of -0.18 (a lower

bound) compared with third-generation methods of 0.048, which have been shown to be

an upper bound estimate (AL). In contrast, our preferred lower-bound estimate that

assumes that all miscarriages would have not have been abortions produces an estimate

of -0.09, and our preferred upper-bound estimate that assumes that only late miscarriages

would have not been abortions produces an estimate of -0.08—a very tight bound. Our

results for years of completed education and welfare receipt show similar tightening of

the bounds of the estimated effect of teenage childbearing, while our results for total

income and labor income are quite similar to results produced from second- and third-

generation methods. In the case of wages, our preferred results have a narrow range of -

$2,700 to -$2,950, which are actually greater than those of the birth / no birth comparison

shown in column 1. In the case of total income, our preferred results suggest a reduction

of approximately $2,400 to $2,800, which are somewhat below the first column estimate of $3,500.

Overall, our results using this uniquely rich data set on teens and their communities suggest large reductions in wages and income and a modest reduction in the probability of graduating high school. Perhaps surprisingly, our results suggest no real influence of teen childbearing on years of schooling, welfare receipt, or obtaining a GED. Our results, which use community-level fixed effects and a comparison either to all those who had a miscarriage or only to those who suffered a late miscarriage, provide a relatively narrow range of predictions of the influence of teen childbearing on outcomes as a young adult. They also highlight the importance of comparing those who gave birth to those who are otherwise similar and of including community or neighborhood factors in order to more accurately estimate the young-adult consequences of teen childbearing.

Table 1
Summary Statistics: National Longitudinal Study of Adolescent Health (Add Health)
Sample of Females who were pregnant by age 18

Variable	Obs	Mean	Std Dev	Min	Max
Birth Outcomes					
Live Birth	1041	0.59	0.49	0	1
Miscarriage	1041	0.16	0.36	0	1
Abortion	1041	0.25	0.43	0	1
Outcomes					
High School Diploma	1038	0.68	0.47	0	1
GED	1039	0.13	0.34	0	1
Years of Schooling	1041	12.26	1.87	7	20
Welfare Receipt	1040	0.13	0.34	0	1
Total Income	987	11910	13192	0	200000
Total Labor Income	1006	9304	11440	0	175000
Individual Characteristics					
Age	1041	21.70	1.65	18	27
White	1041	0.43	0.50	0	1
Black	1041	0.34	0.48	0	1
Hispanic	1041	0.18	0.38	0	1
PPVT Test Score	1041	96.03	12.69	54	132
General Health	1041	2.39	0.94	1	5
Family Characteristics					
Parent Education	1041	12.74	2.14	0	17
Family Income	1041	35.85	26.98	0	426
Parent Married	1041	0.50	0.50	0	1
Parent Religiosity	1041	23.67	18.17	0	50
Mother Work	1041	0.68	0.42	0	1
Parent Missing Data	1041	0.38	0.49	0	1
Pregnancy Variables					
Used Birth Control	1017	0.40	0.49	0	1
Age Pregnancy Ended	1041	17.28	1.10	13	19
Conception Before Age 15	1041	0.08	0.27	0	1
Smoke During Pregnancy	1025	0.20	0.40	0	1
Drink During Pregnancy	1022	0.09	0.28	0	1
Drugs During Pregnancy	1023	0.07	0.26	0	1
Weeks Pregnant	999	24.04	15.12	0	40
Community Variables					
Median Income (Comm)	1041	29.24	7.62	14	49
% Poverty (Comm)	1041	15.02	7.51	4	39
Unemployment Rate (State)	1041	0.07	0.02	0.03	0.15
% Black (Comm	1041	0.17	0.16	0	1
Rural (Comm)	1032	0.26	0.44	0	1
Urban (Comm)	1032	0.40	0.49	0	1
Violent Crime Per 100K (1000s) (Comm)	1027	0.91	0.69	0	3
Total Crime Per 100k (1000s) (Comm)	1027	6.12	2.78	0	17
Monthly AFDC Per Recipient (State)	1041	115.26	50.75	42	214
Medicaid Proportion Receiving AFDC (State)	1041	0.40	0.08	0.2	0.6
% College Graduates (Age>25) (Community)	1041	0.25	0.07	0.1	0.4
Sex Ratio (Ages 17-21) (Community)	1041	0.96	0.13	0.6	1.2

Parental Consent Law (State)	1041	0.56	0.50	0	1
Abortion Funding (State)	1041	0.34	0.48	0	1
Proportion Miscarried (Comm Sample)	1041	15.55	17.37	0	100
Proportion Abortion (Comm Sample)	1041	25.23	21.08	0	100

^Imputed

Notes: "Parent" refers to the parent of the teenage respondent for the family background variables. Miscarriages include stillbirths. % miscarriage and abortion are measured within sample for those individuals located in the same community in Wave 1.

Table 2
Summary Statistics: National Longitudinal Study of Adolescent Health
By Pregnancy Outcome

Variable	Live Births	Abortions	Miscarriages	Late Miscarriages	Early Miscarriages
Outcomes					
High School Diploma	0.61	0.82	0.68	0.67	0.76
GED	0.14	0.11	0.14	0.16	0.07
Years of Schooling	11.89	13.22	12.07	11.92	12.51
Welfare Receipt	0.17	0.06	0.12	0.14	0.07
Total Income	10911	13123	13642	13187	13375
Total Labor Income	8331	10907	10398	10575	10474
Individual Characteristics					
Age	21.79	21.63	21.45	21.54	21.24
White	0.42	0.43	0.47	0.46	0.46
Black	0.37	0.33	0.27	0.25	0.31
Hispanic	0.18	0.15	0.23	0.24	0.22
PPVT Test Score	94.54	100.06	95.18	95.56	95.14
General Health	2.41	2.33	2.40	2.48	2.14
Family Characteristics					
Parent Education	12.43	13.43	12.79	12.84	12.73
Family Income	32.36	44.25	35.54	36.29	34.59
Parent Married	0.46	0.56	0.58	0.61	0.56
Parent Religiosity	23.19	23.06	26.45	29.05	22.06
Mother Work	0.66	0.78	0.63	0.62	0.64
Parent Missing Data	0.43	0.29	0.36	0.40	0.27
Pregnancy Variables					
Used Birth Control	0.39	0.42	0.36	0.33	0.42
Age Pregnancy Ended	17.33	17.17	17.26	17.28	17.20
Conception Before Age 15	0.07	0.11	0.07	0.06	0.10
Smoke During Pregnancy	0.15	0.26	0.28	0.33	0.20
Drink During Pregnancy	0.03	0.21	0.10	0.12	0.07
Drugs During Pregnancy	0.03	0.16	0.10	0.11	0.08
Weeks Pregnant	33.20	9.81	12.78	18.66	3.80
Community Variables					
Median Income ($10,000s) (Comm)	28.16	31.81	29.23	29.51	29.18
% Poverty (Comm)	15.81	13.30	14.85	15.06	14.20
Unemployment Rate (State)	0.07	0.07	0.07	0.07	0.07
% Black (Comm)	0.18	0.15	0.16	0.15	0.17
Rural (Comm)	0.27	0.17	0.35	0.34	0.37
Urban (Comm)	0.41	0.37	0.38	0.39	0.32
Violent Crime Per 100K (1000s) (Comm)	0.90	0.95	0.91	0.93	0.83
Total Crime Per 100k (1000s) (Comm)	6.08	6.21	6.13	5.87	6.51
Monthly AFDC Per Recipient (State)	108.28	129.22	119.17	126.54	107.22
Medicaid % Receiving AFDC (State)	0.40	0.40	0.40	0.39	0.40
% College Grad (Age>25) (Community)	0.24	0.27	0.26	0.25	0.27
Sex Ratio (Ages 17-21) (Community)	0.97	0.96	0.96	0.97	0.95
Parental Consent Law (State)	0.63	0.46	0.46	0.41	0.51
Abortion Funding (State)	0.28	0.48	0.37	0.45	0.24
Proportion Miscarried (Comm Sample)	13.71	15.47	22.65	22.86	23.16

Proportion Abortion (Comm Sample)	22.60	31.64	24.87	25.28	24.49

^Imputed

Notes: "Parent" refers to the parent of the teenage respondent for the family background variables. Early miscarriages are those that occurred prior to 8 weeks (the modal week of miscarriage in our data). Miscarriages include stillbirths. % miscarriage and abortion are measured within sample for those individuals located in the same community in Wave 1.

Table 3
Determinants of Pregnancy Outcomes
Multinomial Logistic Regression Analysis (Omitted Outcome = Miscarriage)

Outcome	Abortion		Live Birth	
	Coefficient	Std. Error	Coefficient	Std. Error
% Miscarriage in Community	-0.015***	(0.006)	-0.024***	(0.006)
% Abortion in Community	0.003	(0.006)	-0.007	(0.005)
Age = 20	-0.878*	(0.491)	-0.568	(0.468)
Age = 21	-0.934**	(0.458)	-0.594	(0.408)
Age = 22	-0.784*	(0.472)	-0.216	(0.429)
Age = 23	-0.662	(0.497)	-0.150	(0.443)
Age = 24	-0.014	(0.518)	0.401	(0.450)
Age = 25	0.733	(0.767)	0.109	(0.805)
Parent Education	0.020	(0.059)	-0.095*	(0.055)
General Health	-0.060	(0.130)	0.013	(0.104)
Black	0.439	(0.286)	0.236	(0.232)
Hispanic	-0.382	(0.316)	-0.123	(0.257)
PVT Score	0.028***	(0.010)	0.007	(0.010)
Family Income	0.010	(0.006)	-0.001	(0.006)
Parent Age	-0.021	(0.018)	-0.017	(0.015)
Married Family	-0.324	(0.259)	-0.322	(0.209)
Missing Parent Data	-0.233	(0.225)	0.173	(0.201)
% Poverty	-0.033*	(0.019)	-0.023	(0.017)
Parent Consent Law (State)	0.270	(0.272)	0.520**	(0.224)
Public Funding for Abortion (State)	0.654**	(0.254)	0.038	(0.217)
Protection at Clinics	-0.453*	(0.243)	-0.424**	(0.215)
Conception Prior to Age 15	0.707*	(0.397)	-0.188	(0.356)
Smoke During Pregnancy	-0.408	(0.282)	-0.738***	(0.230)
Drink During Pregnancy	1.057***	(0.406)	-0.553	(0.417)
Drug Use During Pregnancy	-0.041	(0.540)	-0.725*	(0.412)
Constant	-0.796	(1.382)	3.878***	(1.226)
Observations	1020		1020	

*** p<0.01, ** p<0.05, * p<0.1.

Table 4
Effects of Teenage Childbearing on Early Life Outcomes

Specification	OLS Birth/No Birth	OLS Birth/No Birth	2SLS	2SLS	OLS Birth or Miscarriage	OLS Birth or Miscarriage	OLS Birth or Miscarriage	OLS Birth or Miscarriage
Sample	Birth	Birth	B/A/M	B/A/M	Miscarriage	Miscarriage	Miscarriage	Miscarriage
Fixed Effects	No	Yes	No	Yes	No	Yes	No	Yes
							Late Miscarriages	Late Miscarriages
Diploma	-0.182***	-0.156***	0.012	0.048	-0.087	-0.092**	-0.024	-0.080
	(0.042)	(0.035)	(0.070)	(0.073)	(0.053)	(0.044)	(0.062)	(0.057)
Observations	968	968	968	967	711	711	654	654
Community Dummies P-Value		0.023		0.002		0.096		0.764
Hausman Test P-Value		0.055		0.090		0.225		0.588
GED	-0.003	0.017	-0.050	-0.059	-0.024	0.003	-0.093	-0.021
	(0.037)	(0.024)	(0.066)	(0.071)	(0.048)	(0.034)	(0.060)	(0.044)
Observations	970	970	970	969	713	713	655	655
Community Dummies P-Value		0.052		0.011		0.157		0.913
Hausman Test P-Value		0.176		0.730		0.208		0.369
Education	-0.961***	-0.823***	-0.099	0.149	-0.513**	-0.121	-0.277	0.097
	(0.160)	(0.118)	(0.290)	(0.286)	(0.212)	(0.166)	(0.251)	(0.204)
Observations	971	971	971	970	714	714	656	656
Community Dummies P-Value		0.000		0.000		0		0.023
Hausman Test P-Value		0.004		0.000		0.002		0.005

Controls: Age, Conception before 15, smoke, drink, or take drugs during pregnancy. *** p<0.01, ** p<0.05, * p<0.1 Notes: *No Birth* includes abortions and miscarriages, *B/A/M* includes births, abortions, and miscarriages. Each cell represents a separate regression

Table 4 (continued)
Effects of Teenage Childbearing on Early Life Outcomes

Specification	OLS	OLS	2SLS	2SLS	OLS	OLS	OLS	OLS
	Birth/No	Birth/No			Birth or	Birth or	Birth or	Birth or
Sample	Birth	Birth	B/A/M	B/A/M	Miscarriage	Miscarriage	Miscarriage	Miscarriage
Fixed Effects	No	Yes	No	Yes	No	Yes	No	Yes
							Late Miscarriages	Late Miscarriages
Welfare	0.131***	0.085***	0.083	-0.008	0.110*	0.026	0.083	-0.003
	(0.037)	(0.027)	(0.070)	(0.061)	(0.056)	(0.042)	(0.079)	(0.055)
Observations	970	970	970	969	713	713	655	655
Community Dummies P-Value		0		0.000		0.001		0.099
Hausman Test P-Value		0.147		0.001		0.015		0.096
Total Income	-2.547**	-2.697**	-1.515	-1.300	-1.938	-2.710	-2.031*	-2.952**
	(1.009)	(1.183)	(2.309)	(2.272)	(1.518)	(1.745)	(1.205)	(1.227)
Observations	918	918	918	917	670	670	616	616
Community Dummies P-Value		0.321		0.144		0.071		0.942
Hausman Test P-Value		0.802		0.603		0.575		0.731
Total Wages	-3.546***	-2.487**	-1.905	-1.064	-2.572*	-2.375	-2.254**	-2.846**
	(1.025)	(1.142)	(2.200)	(1.980)	(1.469)	(1.664)	(1.095)	(1.099)
Observations	936	936	936	935	688	688	632	632
Community Dummies P-Value		0.074		0.018		0.019		0.846
Hausman Test P-Value		0.433		0.379		0.621		0.805

Controls: Age, Conception before 15, smoke, drink, or take drugs during pregnancy. *** p<0.01, ** p<0.05, * p<0.1 Notes: *No Birth* includes abortions and miscarriages, *B/A/M* includes births, abortions, and miscarriages. Each cell represents a separate regression

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Table 5
Effects of Teenage Childbearing on Early Life Outcomes
Individuals Using Birth Control

Specification	OLS	OLS	OLS	OLS
	Birth or	Birth or	Birth or	Birth or
Sample	Miscarriage	Miscarriage	Miscarriage	Miscarriage
	Use Birth Control	Use Birth Control	Use Birth Control	Use Birth Control
			Late Miscarriages	Late Miscarriages
Fixed Effects	No	Yes	No	Yes
Diploma	-0.188***	-0.119	-0.093	-0.073
	(0.065)	(0.079)	(0.083)	(0.124)
Observations	273	273	249	249
Community Dummies P-Value		0.821		0.880
Hausman Test P-Value		0.593		0.477
GED	0.051	0.048	0.038	0.003
	(0.066)	(0.071)	(0.073)	(0.102)
Observations	274	274	249	249
Community Dummies P-Value		0.382		0.345
Hausman Test P-Value		0.585		0.505
Education	-0.501	-0.084	0.057	0.446
	(0.320)	(0.415)	(0.464)	(0.556)
Observations	275	275	250	250
Community Dummies P-Value		0.461		0.186
Hausman Test P-Value		0.089		0.012
Welfare	0.066	0.005	0.053	-0.022
	(0.066)	(0.080)	(0.077)	(0.115)
Observations	275	275	250	250
Community Dummies P-Value		0.033		0.038
Hausman Test P-Value		0.076		0.468
Total Income	-4.320**	-1.100	-4.433**	-3.019**
	(1.663)	(1.126)	(1.838)	(1.236)
Observations	255	255	231	231
Community Dummies P-Value		0		0
Hausman Test P-Value		0.027		0.104
Total Wages	-5.146***	-1.417	-4.319***	-3.473**
	(1.620)	(1.338)	(1.310)	(1.376)
Observations	265	265	240	240
Community Dummies P-Value		0.001		0.047
Hausman Test P-Value		0.029		0.204

Controls: Age, Conception before 15, smoke, drink, or take drugs during pregnancy. *** p<0.01, ** p<0.05, * p<0.1. Each cell represents a separate regression

Table 6
Summary of Results Stratified by Birth Control Choice

		Lower Bound B/M, FE	Upper Bound B/LM, FE
High School Diploma	Birth Control	-0.119	-0.073
	No Birth Control	-0.073	-0.061
GED	Birth Control	0.048	0.003
	No Birth Control	-0.018	-0.025
Years of Education	Birth Control	-0.084	0.446
	No Birth Control	-0.057	0.036
Welfare Receipt	Birth Control	0.005	-0.022
	No Birth Control	0.064	0.062
Wages	Birth Control	-1.100	-3.019**
	No Birth Control	-3.120	-2.688
Total Income	Birth Control	-1.417	-3.473**
	No Birth Control	-1.986	-2.072

Notes: Each cell represents a separate regression. All results can be found in
Table 4 or Table 7A. B/M = birth vs. miscarriage comparison. B/LM = birth vs.
late miscarriage comparison. FE = community fixed effects are controlled. IV =
instrumental variables with miscarriage as the instrument

Table 7
Results Summary

	Lower Bound	Upper Bound	Tight Lower Bound	Tight Upper Bound
	Birth/No Birth	IV, FE	B/M, FE	B/LM, FE
High School Diploma	-0.182***	0.048	-0.092**	-0.080
GED	-0.003	-0.059	0.003	-0.021
Years of Education	-0.961***	0.149	-0.121	0.097
Welfare Receipt	0.131***	-0.008	0.026	-0.003
Wages	-2.547**	-1.300	-2.710	-2.952**
Total Income	-3.546***	-1.064	-2.375	-2.846**

Notes: Each cell represents a separate regression. All results can be found in
Table 4. B/M = birth vs. miscarriage comparison. B/LM = birth vs. late
miscarriage comparison. FE = community fixed effects are controlled. IV =
instrumental variables with miscarriage as the instrument.
*** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Appendix Tables:

Table 1A
Summary Statistics: National Longitudinal Study of Adolescent Health
Live Births

Variable	**Obs**	**Mean**	**Std Dev**	**Min**	**Max**
Outcomes					
High School Diploma	614	0.61	0.49	0	1
GED	614	0.14	0.35	0	1
Years of Schooling	616	11.89	1.72	8	20
Welfare Receipt	615	0.17	0.38	0	1
Total Income	578	10911	10170	0	83000
Total Labor Income	595	8331	9676	0	83000
Individual Characteristics					
Age	616	21.79	1.63	18	27
White	616	0.42	0.49	0	1
Black	616	0.37	0.48	0	1
Hispanic	616	0.18	0.38	0	1
PPVT Test Score	616	94.54	12.16	54	130
General Health	616	2.41	0.95	1	5
Family Characteristics					
Parent Education	616	12.43	2.00	0	17
Family Income	616	32.36	25.81	0	426
Parent Married	616	0.46	0.50	0	1
Parent Religiosity	616	23.19	17.70	0	50
Mother Work	616	0.66	0.42	0	1
Parent Missing Data	616	0.43	0.50	0	1
Pregnancy Variables					
Used Birth Control	601	0.39	0.49	0	1
Age Pregnancy Ended	616	17.33	1.05	14	19
Conception Before Age 15	616	0.07	0.25	0	1
Smoke During Pregnancy	605	0.15	0.36	0	1
Drink During Pregnancy	602	0.03	0.17	0	1
Drugs During Pregnancy	603	0.03	0.17	0	1
Weeks Pregnant	588	33.20	11.67	0	40
Community Variables					
Median Income (Comm)	616	28.16	7.21	14	48
% Poverty (Comm)	616	15.81	7.68	4	39
% Black (Comm	616	0.18	0.16	0	1
Rural (Comm)	611	0.27	0.44	0	1
Urban (Comm)	611	0.41	0.49	0	1
Violent Crime Per 100K (1000s) (Comm)	604	0.90	0.65	0	3
Total Crime Per 100k (1000s) (Comm)	604	6.08	2.71	0	14
Monthly AFDC Per Recipient (State)	616	108.28	48.92	42	214
Parental Consent Law (State)	616	0.63	0.48	0	1
Abortion Funding (State)	616	0.28	0.45	0	1
Proportion Miscarried (Comm Sample)	616	13.71	15.03	0	100
Proportion Abortion (Comm Sample)	616	22.60	19.30	0	100

Table 2A
Summary Statistics: National Longitudinal Study of Adolescent Health
Miscarriages

Variable	Obs	Mean	Std Dev	Min	Max
Outcomes					
High School Diploma	162	0.68	0.47	0	1
GED	163	0.14	0.35	0	1
Years of Schooling	163	12.07	1.81	7	20
Welfare Receipt	163	0.12	0.32	0	1
Total Income	156	13642	19941	0	200000
Total Labor Income	157	10398	16508	0	175000
Individual Characteristics					
Age	163	21.45	1.51	18	25
White	163	0.47	0.50	0	1
Black	163	0.27	0.45	0	1
Hispanic	163	0.23	0.42	0	1
PPVT Test Score	163	95.18	13.62	63	132
General Health	163	2.40	0.97	1	5
Family Characteristics					
Parent Education	163	12.79	2.09	8	17
Family Income	163	35.54	27.71	0	233
Parent Married	163	0.58	0.49	0	1
Parent Religiosity	163	26.45	19.26	0	50
Mother Work	163	0.63	0.45	0	1
Parent Missing Data	163	0.36	0.48	0	1
Pregnancy Variables					
Used Birth Control	157	0.36	0.48	0	1
Age Pregnancy Ended	163	17.26	1.11	13	19
Conception Before Age 15	163	0.07	0.26	0	1
Smoke During Pregnancy	160	0.28	0.45	0	1
Drink During Pregnancy	160	0.10	0.30	0	1
Drugs During Pregnancy	159	0.10	0.30	0	1
Weeks Pregnant	156	12.78	11.23	0	40
Community Variables					
Median Income (Comm)	163	29.23	7.70	14	49
% Poverty (Comm)	163	14.85	7.83	4	36
% Black (Comm	163	0.16	0.17	0	1
Rural (Comm)	162	0.35	0.48	0	1
Urban (Comm)	162	0.38	0.49	0	1
Violent Crime Per 100K (1000s) (Comm)	161	0.91	0.76	0	3
Total Crime Per 100k (1000s) (Comm)	161	6.13	3.19	1	17
Monthly AFDC Per Recipient (State)	163	119.17	50.28	42	214
Parental Consent Law (State)	163	0.46	0.50	0	1
Abortion Funding (State)	163	0.37	0.48	0	1
Proportion Miscarried (Comm Sample)	163	22.65	21.12	0	100
Proportion Abortion (Comm Sample)	163	24.87	20.98	0	100

Table 3A
Summary Statistics: National Longitudinal Study of Adolescent Health
Abortions

Variable	Obs	Mean	Std Dev	Min	Max
Outcomes					
High School Diploma	262	0.82	0.39	0	1
GED	262	0.11	0.32	0	1
Years of Schooling	262	13.22	1.93	7	19
Welfare Receipt	262	0.06	0.23	0	1
Total Income	253	13123	13924	0	100000
Total Labor Income	254	10907	11248	0	60000
Individual Characteristics					
Age	262	21.63	1.76	18	25
White	262	0.43	0.50	0	1
Black	262	0.33	0.47	0	1
Hispanic	262	0.15	0.35	0	1
PPVT Test Score	262	100.06	12.50	61	131
General Health	262	2.33	0.90	1	4
Family Characteristics					
Parent Education	262	13.43	2.35	8	17
Family Income	262	44.25	27.46	0	200
Parent Married	262	0.56	0.50	0	1
Parent Religiosity	262	23.06	18.47	0	50
Mother Work	262	0.78	0.37	0	1
Parent Missing Data	262	0.29	0.45	0	1
Pregnancy Variables					
Used Birth Control	259	0.42	0.49	0	1
Age Pregnancy Ended	262	17.17	1.19	14	19
Conception Before Age 15	262	0.11	0.32	0	1
Smoke During Pregnancy	260	0.26	0.44	0	1
Drink During Pregnancy	260	0.21	0.41	0	1
Drugs During Pregnancy	261	0.16	0.36	0	1
Weeks Pregnant	255	9.81	5.62	0	40
Community Variables					
Median Income (Comm)	262	31.81	7.92	14	49
% Poverty (Comm)	262	13.30	6.59	4	36
% Black (Comm	262	0.15	0.15	0	1
Rural (Comm)	259	0.17	0.38	0	1
Urban (Comm)	259	0.37	0.48	0	1
Violent Crime Per 100K (1000s) (Comm)	262	0.95	0.74	0	3
Total Crime Per 100k (1000s) (Comm)	262	6.21	2.67	1	14
Monthly AFDC Per Recipient (State)	262	129.22	52.31	42	214
Parental Consent Law (State)	262	0.46	0.50	0	1
Abortion Funding (State)	262	0.48	0.50	0	1
Proportion Miscarried (Comm Sample)	262	15.47	18.82	0	100
Proportion Abortion (Comm Sample)	262	31.64	23.72	0	100

Table 4A
Summary Statistics: National Longitudinal Study of Adolescent Health
Late Miscarriages

Variable	Obs	Mean	Std Dev	Min	Max
Outcomes					
High School Diploma	102	0.65	0.48	0	1
GED	102	0.19	0.39	0	1
Years of Schooling	102	11.85	1.76	7	16
Welfare Receipt	102	0.15	0.36	0	1
Total Income	99	14066	13990	0	110000
Total Labor Income	98	10567	9574	0	36000
Individual Characteristics					
Age	102	21.60	1.60	18	25
White	102	0.48	0.50	0	1
Black	102	0.25	0.43	0	1
Hispanic	102	0.23	0.42	0	1
PPVT Test Score	102	95.53	13.15	67	121
General Health	102	2.53	0.94	1	5
Family Characteristics					
Parent Education	102	12.86	2.13	8	17
Family Income	102	36.55	31.36	0	233
Parent Married	102	0.60	0.49	0	1
Parent Religiosity	102	28.82	19.36	0	50
Mother Work	102	0.63	0.44	0	1
Parent Missing Data	102	0.39	0.49	0	1
Pregnancy Variables					
Used Birth Control	96	0.32	0.47	0	1
Age Pregnancy Ended	102	17.30	1.06	13	19
Conception Before Age 15	102	0.06	0.24	0	1
Smoke During Pregnancy	100	0.33	0.47	0	1
Drink During Pregnancy	99	0.12	0.33	0	1
Drugs During Pregnancy	99	0.11	0.32	0	1
Weeks Pregnant	95	18.56	10.92	8	40
Community Variables					
Median Income (Comm)	102	29.42	8.02	14	49
% Poverty (Comm)	102	14.94	8.42	4	36
% Black (Comm	102	0.15	0.17	0	1
Rural (Comm)	101	0.34	0.47	0	1
Urban (Comm)	101	0.41	0.49	0	1
Violent Crime Per 100K (1000s) (Comm)	100	0.93	0.83	0	3
Total Crime Per 100k (1000s) (Comm)	100	5.87	3.33	1	17
Monthly AFDC Per Recipient (State)	102	126.05	51.24	42	214
Medicaid Proportion Receiving AFDC (State)	102	0.39	0.09	0.2	0.6
% College Graduates (Age>25) (Community)	102	0.25	0.08	0.1	0.4
Sex Ratio (Ages 17-21) (Community)	102	0.97	0.14	0.6	1.2
Parental Consent Law (State)	102	0.43	0.50	0	1
Abortion Funding (State)	102	0.44	0.50	0	1
Proportion Miscarried (Comm Sample)	102	22.35	21.72	0	100
Proportion Abortion (Comm Sample)	102	25.32	20.58	0	100

Table 5A
Summary Statistics: National Longitudinal Study of Adolescent Health
Early Miscarriages

Variable	Obs	Mean	Std Dev	Min	Max
Outcomes					
High School Diploma	60	0.73	0.45	0	1
GED	61	0.07	0.25	0	1
Years of Schooling	61	12.44	1.85	8	20
Welfare Receipt	61	0.07	0.25	0	1
Total Income	57	12906	27518	0	200000
Total Labor Income	59	10119	24073	0	175000
Individual Characteristics					
Age	61	21.20	1.33	18	24
White	61	0.44	0.50	0	1
Black	61	0.31	0.47	0	1
Hispanic	61	0.23	0.42	0	1
PPVT Test Score	61	94.59	14.46	63	132
General Health	61	2.18	0.99	1	5
Family Characteristics					
Parent Education	61	12.66	2.04	8	17
Family Income	61	33.85	20.33	5	100
Parent Married	61	0.56	0.50	0	1
Parent Religiosity	61	22.48	18.57	0	50
Mother Work	61	0.63	0.46	0	1
Parent Missing Data	61	0.30	0.46	0	1
Pregnancy Variables					
Used Birth Control	61	0.43	0.50	0	1
Age Pregnancy Ended	61	17.20	1.20	14	19
Conception Before Age 15	61	0.10	0.30	0	1
Smoke During Pregnancy	60	0.20	0.40	0	1
Drink During Pregnancy	61	0.07	0.25	0	1
Drugs During Pregnancy	60	0.08	0.28	0	1
Weeks Pregnant	61	3.77	1.97	0	7
Community Variables					
Median Income (Comm)	61	28.91	7.18	16	48
% Poverty (Comm)	61	14.70	6.79	5	36
% Black (Comm	61	0.18	0.18	0	1
Rural (Comm)	61	0.36	0.48	0	1
Urban (Comm)	61	0.33	0.47	0	1
Violent Crime Per 100K (1000s) (Comm)	61	0.87	0.63	0	3
Total Crime Per 100k (1000s) (Comm)	61	6.57	2.91	2	14
Monthly AFDC Per Recipient (State)	61	107.67	46.80	42	198
Medicaid Proportion Receiving AFDC (State)	61	0.40	0.09	0.2	0.6
% College Graduates (Age>25) (Community)	61	0.27	0.07	0.1	0.4
Sex Ratio (Ages 17-21) (Community)	61	0.95	0.15	0.6	1.2
Parental Consent Law (State)	61	0.51	0.50	0	1
Abortion Funding (State)	61	0.25	0.43	0	1
Proportion Miscarried (Comm Sample)	61	23.14	20.25	0	100
Proportion Abortion (Comm Sample)	61	24.11	21.80	0	100

Effects of Teenage Childbearing on Early Life Outcomes
Individuals Not Using Birth Control

Specification	OLS	OLS	OLS	OLS
Sample	Birth or Miscarriage No Birth Control	Birth or Miscarriage No Birth Control	Birth or Miscarriage No Birth Control Late Miscarriages	Birth or Miscarriage No Birth Control Late Miscarriages
Fixed Effects	No	Yes	No	Yes
Diploma	-0.010	-0.073	0.026	-0.061
	(0.077)	(0.069)	(0.084)	(0.095)
Observations	431	431	398	398
Community Dummies P-Value		0.08		0.074
Hausman Test P-Value		0.441		0.774
GED	-0.080	-0.018	-0.153**	-0.025
	(0.061)	(0.052)	(0.073)	(0.068)
Observations	432	432	399	399
Community Dummies P-Value		0.462		0.431
Hausman Test P-Value		0.587		0.871
Education	-0.473*	-0.057	-0.403	0.036
	(0.248)	(0.261)	(0.314)	(0.310)
Observations	432	432	399	399
Community Dummies P-Value		0		0
Hausman Test P-Value		0.016		0.102
Welfare	0.142*	0.064	0.126	0.062
	(0.084)	(0.066)	(0.110)	(0.089)
Observations	431	431	398	398
Community Dummies P-Value		0.064		0.033
Hausman Test P-Value		0.848		0.723
Total Income	-0.003	-3.120	-0.304	-2.688
	(2.234)	(2.976)	(1.778)	(2.226)
Observations	408	408	378	378
Community Dummies P-Value		0.762		0.065
Hausman Test P-Value		0.277		0.400
Total Wages	-0.466	-1.986	-0.705	-2.072
	(1.952)	(2.690)	(1.533)	(1.961)
Observations	416	416	385	385
Community Dummies P-Value		0.457		0.049
Hausman Test P-Value		0.392		0.341

Controls: Age, Conception before 15, smoke, drink, or take drugs during pregnancy.. *** p<0.01, ** p<0.05, * p<0.1. Each cell represents a separate regression

Table 7A
Effects of Teenage Childbearing on Early Life Outcomes
Out of Wedlock Pregnancies

Specification	OLS Birth/No	OLS Birth/No	2SLS	2SLS	OLS Birth or	OLS Birth or
Sample	Birth	Birth	B/A/M	B/A/M	Miscarriage	Miscarriage
Fixed Effects	No	Yes	No	Yes	No	Yes
				Not		
	Not Married	Not Married	Not Married	Married	Not Married	Not Married
Diploma	-0.146***	-0.136***	0.088	0.122*	-0.033	-0.049
	(0.044)	(0.035)	(0.078)	(0.072)	(0.057)	(0.045)
Observations	873	873	873	871	618	618
Community Dummies P-Value		0.004		0		0.051
Hausman Test P-Value		0.086		0.258		0.206
GED	-0.017	0.015	-0.077	-0.077	-0.042	0.001
	(0.038)	(0.025)	(0.071)	(0.078)	(0.051)	(0.038)
Observations	875	875	875	873	620	620
Community Dummies P-Value		0.174		0.052		0.642
Hausman Test P-Value		0.458		1		0.604
Education	-0.889***	-0.779***	0.040	0.302	-0.431*	-0.032
	(0.182)	(0.124)	(0.332)	(0.343)	(0.240)	(0.195)
Observations	876	876	876	874	621	621
Community Dummies P-Value		0		0		0
Hausman Test P-Value		0.002		0.002		0
Welfare	0.158***	0.088***	0.136*	0.041	0.153***	0.032
	(0.039)	(0.027)	(0.071)	(0.058)	(0.057)	(0.041)
Observations	876	876	876	874	621	621
Community Dummies P-Value		0		0		0.009
Hausman Test P-Value		0.039		0.021		0.001
Total Income	-2.278**	-2.378*	-0.984	-0.792	-1.491	-2.282
	(1.056)	(1.237)	(2.577)	(2.435)	(1.642)	(1.890)
Observations	830	830	830	827	583	583
Community Dummies P-Value		0.215		0.07		0.038
Hausman Test P-Value		0.640		0.821		0.455
Total Wages	-3.224***	-2.124*	-1.282	0.162	-2.077	-1.740
	(1.104)	(1.139)	(2.461)	(2.177)	(1.596)	(1.780)
Observations	848	848	848	845	601	601
Community Dummies P-Value		0.054		0.009		0.025
Hausman Test P-Value		0.270		0.209		0.307

Controls: Age, Conception before 15, smoke, drink, or take drugs during pregnancy. *** p<0.01, ** p<0.05, * p<0.1 Notes: *No Birth* includes abortions and miscarriages, *B/A/M* includes births, abortions, and miscarriages. Each cell represents a separate regression

Table 8A
Robustness Results using Limited Controls

Specification	OLS Birth/No	OLS Birth/No	2SLS	2SLS	OLS Birth or	OLS Birth or
Sample	Birth	Birth	B/A/M	B/A/M	Miscarriage	Miscarriage
Fixed Effects	No	Yes	No	Yes	No	Yes
Diploma	-0.157***	-0.139***	0.014	0.051	-0.061	-0.070
	(0.041)	(0.034)	(0.071)	(0.074)	(0.052)	(0.043)
Observations	987	987	987	985	727	727
Community Dummies P-Value		0.029		0.003		0.133
Hausman Test P-Value		0.056		0.077		0.244
GED	-0.017	0.012	-0.066	-0.084	-0.046	-0.012
	(0.038)	(0.026)	(0.067)	(0.070)	(0.049)	(0.033)
Observations	989	989	989	987	729	729
Community Dummies P-Value		0.023		0.004		0.195
Hausman Test P-Value		0.464		0.375		0.164
Education	-0.886***	-0.766***	-0.025	0.199	-0.386*	-0.047
	(0.151)	(0.117)	(0.287)	(0.294)	(0.208)	(0.158)
Observations	990	990	990	988	730	730
Community Dummies P-Value		0		0		0
Hausman Test P-Value		0.007		0		0.005
Welfare	0.126***	0.084***	0.080	-0.006	0.101*	0.027
	(0.035)	(0.026)	(0.069)	(0.063)	(0.052)	(0.041)
Observations	989	989	989	987	729	729
Community Dummies P-Value		0.001		0		0.001
Hausman Test P-Value		0.146		0.002		0.029
Total Income	-2.235**	-2.448**	-1.480	-1.115	-1.690	-2.419
	(0.933)	(1.168)	(2.318)	(2.313)	(1.535)	(1.805)
Observations	935	935	935	933	685	685
Community Dummies P-Value		0.367		0.192		0.086
Hausman Test P-Value		0.537		0.017		0.425
Total Wages	-3.251***	-2.239**	-1.827	-0.910	-2.336	-2.178
	(0.941)	(1.091)	(2.228)	(2.036)	(1.492)	(1.704)
Observations	954	954	954	952	703	703
Community Dummies P-Value		0.085		0.026		0.019
Hausman Test P-Value		0.177		0.311		0.489

Controls: Age, Conception before 15. *** p<0.01, ** p<0.05, * p<0.1 Notes: *No Birth* includes abortions and miscarriages, *B/A/M* includes births, abortions, and miscarriages. Each cell represents a separate regression

Table 9A
Community Level Variables Predicting Outcomes

Outcome	High School Diploma	GED	Yrs of Education	Welfare Receipt	Total Income	Labor Income
Median Income	-0.009	0.001	-0.001	-0.016*	0.464*	0.469**
	(0.007)	(0.005)	(0.035)	(0.008)	(0.236)	(0.212)
% in Poverty	-0.020**	-0.008	-0.011	-0.012	0.134	0.192
	(0.008)	(0.006)	(0.036)	(0.009)	(0.185)	(0.182)
% Black	0.232	-0.046	0.063	-0.087	-1.802	4.949
	(0.235)	(0.194)	(1.161)	(0.263)	(7.099)	(6.312)
Rural	0.089*	-0.073*	0.195	-0.064	0.884	0.806
	(0.052)	(0.042)	(0.205)	(0.065)	(1.774)	(1.566)
Urban	-0.121**	-0.058	-0.427**	0.023	1.202	1.410
	(0.050)	(0.060)	(0.200)	(0.056)	(1.147)	(0.995)
Violent Crime	0.130	-0.085	0.226	0.034	0.885	-2.979
	(0.105)	(0.067)	(0.431)	(0.100)	(2.437)	(2.138)
Total Crime	-0.037**	0.014	-0.077	0.003	-0.004	0.373
	(0.018)	(0.013)	(0.081)	(0.020)	(0.429)	(0.382)
AFDC Benefits	0.000	-0.000	0.003	0.002***	-0.015	-0.011
	(0.001)	(0.001)	(0.004)	(0.001)	(0.016)	(0.014)
Unemployment Rate	1.406	3.638***	-3.157	1.455	-36.185	-70.519*
	(2.568)	(1.372)	(8.622)	(1.833)	(39.305)	(38.242)
% Welfare	-0.317	-0.035	-2.096*	0.065	3.002	2.725
	(0.226)	(0.220)	(1.234)	(0.426)	(7.170)	(7.835)
% College Graduates	0.610	-0.153	1.411	-0.020	-7.778	-13.793
	(0.478)	(0.267)	(2.505)	(0.510)	(12.559)	(12.377)
Sex Ratio (17-21)	0.078	0.314**	-0.253	0.260	-5.916	-7.439**
	(0.162)	(0.122)	(0.849)	(0.169)	(3.948)	(3.334)
Constant	0.255	-0.531*	8.429***	0.627	-23.382**	-22.909**
	(0.439)	(0.286)	(1.679)	(0.434)	(10.741)	(9.818)
Observations	687	689	690	689	648	664
R-squared	0.14	0.07	0.16	0.08	0.11	0.13
Fpvalue	0.000	0.001	0.000	0.142	0.007	0.012

Additional Controls: Age, Conception before 15, smoke, drink, or take drugs during pregnancy.
*** p<0.01, ** p<0.05, * p<0.1

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