THE EFFECTS OF TEENAGE FATHERHOOD ON YOUNG ADULT OUTCOMES

JASON M. FLETCHER and BARBARA L. WOLFE*

This paper uses national longitudinal data and several new empirical strategies to examine the consequences of teenage fatherhood. The key contribution is to compare economic outcomes of young fathers to young men whose partners experienced a miscarriage rather than a live birth. The results suggest that teenage fatherhood decreases years of schooling and the likelihood of receiving a high school diploma and increases general educational development receipt. Teenage fatherhood also appears to increase early marriage and cohabitation, and has mixed short-term effects on several labor market outcomes. (*JEL* J13, J24, J10)

I. INTRODUCTION

Public interest in the issue of teenage child-bearing has recently increased, largely because of increases in both the teen pregnancy rate and the teen birth rate; these trends are viewed with particular concern in that they reverse the decline in these trends that began in 1991. But how large are the consequences of a teenage birth to the society and in particular, the young men and women who become parents at a young age? In this paper, we examine the educational and labor market effects, and other young adult outcomes of teenage fatherhood, a less researched topic.

There is an extensive literature on the consequences of teen parenting for women. In that literature, there are several important lessons that will be valuable for our focus on teenage fatherhood. The early work in the consequences of teenage parenthood for young women compared outcomes of teenagers who gave birth with teenagers who did not and found large "effects." Later studies utilized the timing of pregnancies before and after the teenage years and found smaller, but still important relationships. A key innovation appeared in the study of Hotz, McElroy, and Sanders (2005), where the authors used miscarriages as quasinatural experiments and found no or even *positive* effects of teenage childbearing on economic outcomes. More recently, Ashcraft and Lang (2006) and Fletcher and Wolfe (2009) used information on the timing of miscarriages to show that teenage childbearing has modest *negative* effects on several educational and labor market outcomes for teen mothers. While these advances (and others) have substantially added to our knowledge of the consequences of teenage motherhood, much

Fletcher: School of Public Health, Yale University, New Haven, CT 06520; Robert Wood Johnson Foundation Health & Society Scholar, Columbia University, New York, NY 10024. Phone 203 785 5760, Fax 203 785 6287, E-mail jason.fletcher@yale.edu

Wolfe: Departments of Economics and Population Health Sciences, and La Follette School of Public Affairs, University of Wisconsin-Madison, Madison, WI 53706. Phone 608 263 2029, Fax 608 265 3233, E-mail wolfe@lafollette.wisc.edu

---

ABBREVIATIONS

CPS: Current Population Survey
GED: General Educational Development
NLSY: National Longitudinal Survey of Youth
NSFG: National Survey of Family Growth
OLS: Ordinary Least Squares
PPVT: Peabody Picture Vocabulary Test
SES: Socioeconomic Status
SIPP: Survey of Income and Program Participants

---

less is known about the consequences of teenage fatherhood.

This paper represents the first research to extend the most recent methods that have been used to examine the consequences of teenage motherhood in order to examine such consequences for teenage fathers. To accomplish this, we used a nationally representative longitudinal data set on adolescents as they make their transition into young adulthood. After conducting some comparisons of pregnancy outcomes for teenagers across genders and a discussion of reporting issues, we turn to the consequences of teenage fatherhood. We begin by estimating results using standard comparison groups, including all young men who did not become fathers. We then extend the literature by comparing young men whose *partners* experienced a pregnancy with those whose *partners* gave birth. Finally, we eliminate comparisons of pregnancies that ended in abortion in order to compare young fathers only with those young men whose partners experienced a miscarriage.

Generally, we find evidence that teenage fatherhood shifts educational outcomes by decreasing years of schooling and the likelihood of receiving a high school diploma and increasing general educational development (GED) receipt. Teenage fatherhood also increases the likelihood of early marriage and cohabitation. We find few detectable short-term effects on labor outcomes, including no detectable effects on labor income and employment status; however, we find some evidence of increased full-time employment and military employment following a birth. Importantly, in many cases there are sizable differences between the estimates using the standard comparisons made in the literature and our estimates. Finally, in order to provide some suggestive evidence of whether the consequences are different for those who seek to avoid a pregnancy versus those who do not take steps to avoid the pregnancy, we show that teens who practiced birth control preceding the birth face smaller consequences than those who do not practice birth control. This difference is likely to reflect otherwise unobserved differences in future orientation and ability to plan and thus better capture the consequences of teenage pregnancy.

II. BACKGROUND LITERATURE

As of 2001, the official rate of teen fatherhood for males aged 15–19 was 18.5 per 1,000, down from 23.5 in 1990 (Ventura, Hamilton, and Sutton 2003). The male rate for 2001 is less than half that reported for similarly aged females, which may in part reflect the fact that numerous teen births are fathered by males aged 20 and older (i.e., nonteenagers) (Landry and Forrest 1995) and in part reflect the fact that numerous teenage males do not know or acknowledge that they are teenage fathers. Importantly, it is those who know that they are teenage fathers who are the most likely to face consequences, which is the focus of our analysis. Thus, the 18.5 rate represents a significant number of males who are likely to face negative consequences for fathering a child as a teen. Just how negative are these consequences?

Conceptually, there are several reasons that teenage fatherhood may have impacts on education and labor market outcomes. Having a child is a life-changing event that could entail a dramatic reallocation of time and financial expenses. For example, Marsiglio (1987) found that 50% of young men lived with their child shortly after the child's birth and that 22% of those men also lived with their parents or their partner's parents. Many young men (Marsiglio 1987, reports 1/3), marry within 12 months of the conception. Brien and Willis (1997) report that adolescent fathers work more hours and earn more money following a birth than their nonparent peers. On the other hand, child-support obligations for young fathers have been seldom enforced, historically, so that teenage fatherhood may be less disruptive than teenage motherhood (Rivera-Casale, Klerman, and Manela 1984), though there is evidence that child-support enforcement has increased considerably since then. For example, the Family Support Act of 1988 and the 1996 welfare reform legislation may increase rates of child support (Coley and Chase-Lansdale 1998).[1] And recent analysis suggests that among sexually active adolescent males, strong state enforcement is tied to fewer sexual partners and greater use of contraceptives (Huang and Han 2007).

While a large and innovative literature estimates the effects of teenage motherhood on young adult outcomes, much less research has examined the effects of teenage fatherhood.

---

1. Recent research found that state enforcement of Child Support reduces nonmarital childbearing; that is the incentive effects on potential fathers appear to dominate the incentive influence on potential mothers. See for example, Plotnick et al. (2009). This research does not separately analyze adolescent males.

Literature explores the risk factors associated with teenage fatherhood. It suggests that teenage fathers are more likely to be a member of a minority race, have a mother who gave birth as a teen, have parents with limited education, and have parents with limited educational expectations for their son. Thus, the probability of becoming a father as a teen is tied to certain risk factors, which are also likely to influence future outcomes (see, for example, Thornberry, Smith, and Howard [TSH] 1997). While TSH and other papers have examined the precursors to teenage fatherhood, less is known of the effects of fatherhood on the young men's outcomes.

To correctly answer the question of the consequences of teenage parenthood, one requires an accurate measure of the *counterfactual*—what would have happened to the teenager had he or she not become a parent. The first generation of studies examining women's outcomes used a straightforward ordinary least squares (OLS) regression specification with standard 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. Employing this approach, Card and Wise (1978) showed that teenage fathers complete nearly one fewer year of schooling than do nonteenage fathers. Using similar comparison groups, we replicate these results for teenage fathers; we estimate that they complete approximately one fewer year of schooling.[2]

A second generation of studies attempted to account for the choice of timing of births and found considerably less tie between giving birth as a teen and subsequent schooling.[3] Also important has been the comparison of siblings, which allows all shared family factors to be controlled in the analysis. Nock (1998) used data on brother pairs and found evidence that men who have children before marriage leave school earlier and have worse labor market outcomes. From this point, the literatures examining the effects of teenage fatherhood and teenage motherhood diverge, with new innovations in the latter literature.

A third generation of studies investigating teenage motherhood uses an instrumental variable approach to compare outcomes and generally find either no negative effects of giving birth as a teen on level of schooling or a counterintuitive positive influence (Hotz, McElroy, and Sanders 2005). The insight of Hotz et al. 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.[4] Ashcraft and Lang (2006) and Fletcher and Wolfe (2009) go a step further than Hotz et al. in that the authors recognize that the abortion–miscarriage distinction is not "clean" in the sense that some of those who abort would have had a miscarriage had they not aborted and 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." Leveraging this insight, Ashcraft and Lang 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 Hotz et al. for years of schooling. The work by Fletcher and Wolfe on the effect of giving birth as a teen on young women comes to a similar conclusion to Ashcraft and Lang: there are modest negative effects on these young women who have given birth as a teen.

In this paper, we extend the literature examining the effects of teenage fatherhood on young adult outcomes by being the first study to apply advances found in the third generation of studies in the teenage motherhood literature. In particular, we use unique information on young men's reports of their partner's pregnancy experiences, including live births, abortions, and miscarriage outcomes. We are thus able to use the quasi-natural experimental approach used by Hotz et al. and others as well as follow Ashcraft and Lang and Fletcher and Wolfe in making comparisons between teenage fathers

2. There also is a study by Brien and Willis (1997) that is similar to early research on the implications of a birth as a teen on mothers. In this research, they look at a set of human capital, occupation, and income outcomes at age 27 and focus on the role of early parenting on these outcomes. In doing so they control for a variety of other factors that are likely to influence these outcomes including a measure of IQ (AFQT), mother's and father's education, living arrangements while growing up, race, religion, and various measures of access to reading. The analysis uses National Longitudinal Survey of Youth data and examines all males in the sample who are not in the military, are not part of the supplementary survey of economically disadvantaged non-black, non-Hispanics, and did not drop out of the sample before age 27.

3. See (Ribar 1994) for a review of this literature.

4. 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.

and teenage males whose partners experienced a miscarriage. Finally, we follow Fletcher and Wolfe and use information on whether the adolescent was practicing birth control at the time of the fertilization as a measure of whether or not he actively sought to prevent the pregnancy.

III. DATA I: SAMPLE OVERVIEW

The data we use in our analysis are from the restricted version of the National Longitudinal Study of Adolescent Health (Add Health). Add Health is a school-based, nationally representative longitudinal study of 7–12th graders in the United States beginning in 1994–1995. The sample of schools was a stratified, random sample of all high schools that contained an 11th grade and had an enrollment greater than 30 students, and the Wave 1 in-home survey contains 20,745 respondents.[5] Follow-up waves occurred in 1995–1996 and 2001–2002 (a fourth wave will follow). The respondents are on average 22 years old in the latest available data, so our analysis will focus on estimating short-term effects of teenage fatherhood.

We use data only from those young men who reported a pregnancy as an adolescent in our analysis. This sample is constructed by comparing each male respondent's age with the month and year of the pregnancy outcomes reported. Any male with a partner who experienced a pregnancy while the respondent was younger than 18 years and 9 months is included as a teenage pregnancy for the father. In the Appendix (Table A3), we show that our results are essentially unchanged if we broaden the definition of teenage fathers to include those younger than 20 years and 9 months. There are over 2,100 pregnancies reported by men in the survey 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 1,650 pregnancies) and on pregnancies that ended before age 18 years and 9 months, leaving an analysis sample of 362 observations. We combine reported miscarriages and still-births into one category—"miscarriages." While the 362 observations make up our analysis sample, we also make use of the full sample of males

to compare with previous literature.[6] We note, however that while these data are from a national sample, our analysis may not be truly nationally representative given both the relatively small sample and likelihood of nonrandom attrition at follow-up. Table 1 provides basic summary statistics for our analysis sample; the variables are defined in the data dictionary in Table A7 of the Appendix. It is difficult to match the pregnancy outcomes in our data set to national estimates because there are few informative data sets containing pregnancy outcomes for young fathers (Nock 1998), especially unmarried fathers. For example, half of all birth records for unmarried women provide no information about the father (Nock 1998). Lindberg et al. (1998) summarize research that suggests substantial underreporting of teenage fatherhood in the NLSY, the 1992 Survey of Income and Program Participants (SIPP), and the 1980 CPS. However, the pregnancy outcomes reported by the males in the Add Health study are relatively comparable to those reported by the females. Males reported that their partners' pregnancies ended in live births, abortions, and miscarriages (or stillbirths) for 48%, 29%, and 22% in the Add Health sample, respectively. Similar reports for females included pregnancies ending in live births, abortions, and miscarriages (or stillbirths) for 59%, 25%, and 16% of the Add Health sample, respectively (Fletcher and Wolfe 2009). Darroch, Landry, and Oslak (1999) report that 40% of pregnancies involving teenage fathers end in abortion (excluding miscarriages). In our sample, 32% of births end in abortion (excluding miscarriages).[7]

IV. DATA II: A CLOSER EXAMINATION OF SELF-REPORTED PREGNANCY DATA

The reported distributions of pregnancy outcomes appear similar between males and females; however, a χ^2 test rejects equality of distribution ($p < .01$). A priori we expected that

5. High schools were stratified into 80 clusters, including region, urbanicity, school size, school type, racial composition, grade span, and curriculum. Additional features of the data can be found online: http://www.cpc.unc.edu/projects/addhealth/design/designfacts.

6. A small number of teenage males reported multiple teenage pregnancies for their partners. In constructing our live birth outcome, we use a definition of any live birth as a teenager rather than limit this outcome to live births from the first instance of a teen pregnancy.

7. There is very limited available information about teenage men's participation in their partners' decision to have an abortion. The Alan Guttmacher Institute (2002) reports some suggestive evidence: one-third of women attending abortion clinics in 1991 came with their boyfriend, 75% reported that their boyfriend had been involved in deciding to get an abortion, and 20% reported that their boyfriend was the most helpful person in making arrangements for an abortion.

TABLE 1

Summary Statistics: National Longitudinal Study of Adolescent Health (Add Health)—Sample
of Males Who Experienced a Partner-Pregnancy Prior to Their 18th Birthday

Variable	Data Wave	Observation	Mean	SD	Min	Max
Birth outcomes						
Live birth	3	362	0.49	0.50	0	1
Miscarriage	3	362	0.29	0.45	0	1
Abortion	3	362	0.22	0.42	0	1
Outcomes						
High school diploma	3	362	0.64	0.48	0	1
GED	3	362	0.16	0.36	0	1
Years of schooling	3	362	12.02	1.80	7	21
Married	3	362	0.23	0.42	0	1
Cohabit (ever)	3	362	0.61	0.49	0	1
Employed	3	345	0.74	0.44	0	1
Employed full time	3	345	0.57	0.50	0	1
Total income	3	340	16.83	19.81	0.00	250.00
Total labor income	3	348	14.28	18.86	0.00	250.00
Idleness	3	349	0.21	0.41	0	1
Military		362	0.04	0.19	0	1
Individual characteristics						
Age	3	362	21.64	1.90	18	26
White	All	362	0.39	0.49	0	1
Black	All	362	0.34	0.47	0	1
Hispanic	All	362	0.21	0.41	0	1
PPVT test score	1	362	98.46	12.73	64	133
General health (1 = excellent)	1	362	2.09	0.91	1	5
Birth control	3	347	0.40	0.49	0	1
Family characteristics						
Parent education	1	362	12.97	2.23	0	17
Family income	1	362	38.75	30.22	−30	250
Parent married	1	362	0.55	0.50	0	1
Parent religiosity	1	362	26.10	18.87	0	50
Mother work	1	362	0.71	0.41	0	1
Parent missing data	1	362	0.36	0.48	0	1

males would report a higher proportion of births compared to females because the males would be more likely to "know" of the birth. Our data do not support this intuition. The evidence in the literature suggests that more than 80% of adolescents who are considering an abortion tell their partner about the pregnancy (Resnick et al. 1994), which suggests the mismatch in birth outcomes between genders may be primarily for the miscarriage/birth outcomes. One explanation of the reported rates is that partners of men under age 18 are likely younger than age 18. As the age of young mothers is a predictor of miscarriage (Ashcraft and Lang 2006), this may partially explain the higher proportion of miscarriages reported by young men in comparison to young women.[8]

8. In this paper, we require males to be less than 18 years old at the time of pregnancy and we do not place restrictions on the age of the pregnant females (and do not

There are several other reasons that fertility information reported by males could differ from that reported by females. Males may not be aware of all pregnancies of their partners and hence under-report pregnancies (Nock 1998). There is some evidence that males are less accurate in reporting birth histories, even with knowledge of the births (Lerman 1993). It is also possible that partners report miscarriages from nonoccurring pregnancies. Lindberg et al. (1998) suggest that three survey features may lower the likelihood of misclassification of teenager fatherhood: (1) asking the male directly, rather than utilizing proxy respondent's report; proxy reports are used in the CPS and SIPP, (2) asking a series of sexual and

know their ages). Comparison rates using the Add Health data from Fletcher and Wolfe (2009) require the females to be less than 18 years old at the time of pregnancy and place no restrictions on the age of the fathers.

contraceptive behaviors questions, which may help recall and increase the salience of sexual histories, and (3) a short interval between partner-pregnancies and the interview. Add Health data contain each of these survey features that has been shown to increase reliability.

In order to further examine young men's knowledge (or lack of knowledge) of partner-pregnancies, we look to the National Survey of Family Growth (NSFG, Cycle 6, 2002),[9] where men were asked the likelihood of not knowing about partners' pregnancies that did not result in live births.[10] Based on the NSFG, 9% of men under 22 years old said they may not know about partners' pregnancies; this variable did not vary by race; young men who grew up with married parents were less likely to report not knowing ($p < .06$) (source: authors' calculations). Thus, this evidence suggests that the fertility information reported by young men in our data is likely imperfect, but may not be systematically problematic.[11]

In the Add Health data, males who report being told about a pregnancy are asked when they learned about the pregnancy. This permits us to compare the timing of information and pregnancy outcomes reported by males with those reported by the females in the sample. This also provides us with additional ability to learn more about the likely biases because of selection of which teen males know about a pregnancy (or report it to the interviewer). (We have similar information from the pregnant female teenagers—when they told the "father" of the pregnancy and the outcome of the pregnancy.)

In Table 2, we report the timing pattern by pregnancy outcome. Although the male sample is considerably smaller, the overall distribution

---

9. http://www.cdc.gov/nchs/NSFG.htm.

10. The question reads, "Could you have ever had a pregnancy like this (miscarriage, still birth, or abortion) with a woman that you didn't know about?"

11. While the NSFG data contain important information that would be useful for our study, we are unable to use our research design with these data because age at each pregnancy is not available. This information is essential in order to determine whether a male was involved in a pregnancy by age 18. For the 53 males in NSFG whom we might use as they are under 19 years old in the sample and report a pregnancy, the data are not consistent: males report more total pregnancies than the sum of abortions, miscarriages, and children. The percentages reported are 4%, 10%, and 30%, respectively. Thus, the combination of limited sample size, limited age information, and the way the questions are asked in the NSFG makes it difficult to compare our Add Health data to the NSFG. These characteristics of NSFG make it a relatively poor data set to study male teen birth outcomes.

TABLE 2

Comparison of Contact and Information during Pregnancy for Males and Females

Month Told (Was Told by) Partner about Pregnancy	Females (%)	Young Females (%)	Males (%)
0	4.38	4.01	5.60
1	45.57	40.80	39.82
2	24.44	25.08	26.25
3	14.02	14.05	17.11
4	4.48	6.35	4.72
5	2.43	3.34	2.95
6	2.14	3.01	1.77
7	0.78	1.67	0.29
8	0.39	33.00	0.88
9	1.36	1.34	0.59
	100	100	100
Contact during pregnancy	89.84	83.20	87.64

Notes: Includes sample of males who experienced a partner-pregnancy prior to their 18th birthday and the sample of females who experienced a pregnancy prior to their 18th birthday. Young females include those individuals who experienced a pregnancy that ended before age 16 and 9 months.

Female and Male Differences:
$\chi^2(9) = 8.60$ ($p < .48$) for difference in distribution of "month told"
t test for "contact" $= 1.15$ ($p < .25$)
Young Female and Male Differences:
$\chi^2(9) = 8.71$ ($p < .46$) for difference in distribution of "month told"
t test for "contact" $= 1.57$ ($p < .12$)

---

is remarkably similar, and a χ^2 test fails to reject equality by gender. We also examine whether males or females report contact with their partner during the pregnancy. As much as 89% of the sample report contact during the pregnancy, and a t test fails to reject equality between gender groups. In order to capture a potentially more comparable distribution of males and females, we also compare younger females (pregnancy ended before age 16 and 9 months) with the males in the sample; the results do not change. Finally, as another sensitivity check on our results, we reweight our analysis sample of males so that the proportions of birth outcomes match those from the sample of females. Intuitively, this procedure reduces the weights of males who report a partner miscarriage and increases the weights of the males who report a live birth. We do this to reduce possible bias in that some of the males may not have been informed of the pregnancy. As we discuss later, weighing the data does not affect our results. Even with these checks, we likely do not identify

some males who became teen fathers—these males do not contribute to our preferred analysis. Indeed, we suspect that those who know about the pregnancy will be more likely to be affected by the pregnancy outcome and are our primary interest.

V. DATA III: DESCRIPTIVE STATISTICS

Of the young men in our sample (who have all reported that their partner experienced a teen pregnancy), 64% receive a high school diploma and 16% receive a GED. As many as 23% are married and 61% have ever cohabited by the Wave 3 survey. As many as 74% are currently working at least 10 hours a week (57% full time, 4% in the military) and 21% are idle (not in school nor working). As many as 40% report using birth control before their partner's

pregnancy. If we use the weights that equalize birth outcomes, the descriptive characteristics of our sample of males change only slightly in most cases: 62% receive a high school diploma, 16% receive a GED, 26% are married, and 62% have ever cohabited. As many as 73% are currently working (57% full time, 4% in the military), and 21% are idle. See Table A4 in the Appendix.

Table 3 stratifies the summary statistics by each of the pregnancy outcomes for the original sample and the reweighted sample. The raw and reweighted mean values (see Table A5 in the Appendix) suggest that even conditional on this sample of young men whose partners experienced a teen pregnancy, those whose partners elected to have an abortion were more advantaged than those whose partners had a miscarriage or live birth. Young men whose partners had an abortion scored higher on an

TABLE 3

Summary Statistics: National Longitudinal Study of Adolescent Health by Pregnancy Outcome—Sample of Males Who Experienced a Partner-Pregnancy Prior to Their 18th Birthday

| | Live Birth | | Abortion | | Miscarriage | | | | |
| | N = 177 | | N = 81 | | N = 104 | | | | |
Variable	Mean	SD	Mean	SD	Mean	SD	1 versus 2	2 versus 3	1 versus 3
Outcomes									
High school diploma	0.55	0.50	0.77	0.43	0.68	0.47	***		**
GED	0.18	0.38	0.15	0.36	0.13	0.34			
Years of schooling	11.57	1.62	12.86	1.99	12.13	1.70	***	*	**
Married	0.34	0.47	0.16	0.37	0.12	0.32	***		***
Cohabit (ever)	0.68	0.47	0.56	0.50	0.53	0.50	*		**
Employed	0.73	0.44	0.71	0.46	0.77	0.42			
Employed full time	0.62	0.49	0.47	0.50	0.57	0.50	**		
Total income	16.569	14.417	17.989	19.700	16.376	26.598			
Total labor income	14.220	14.554	14.498	15.985	14.209	26.198			
Idleness	0.24	0.43	0.18	0.38	0.18	0.39			
Military	0.03	0.18	0.06	0.24	0.02	0.14			
Individual characteristics									
Age	21.79	1.95	21.90	1.68	21.19	1.92			
White	0.41	0.49	0.37	0.49	0.38	0.49			
Black	0.31	0.46	0.41	0.49	0.34	0.47			
Hispanic	0.23	0.42	0.12	0.33	0.24	0.43	*	**	
PPVT test score	96.52	12.09	102.86	11.37	98.33	13.99	***	**	
General health (1 = excellent)	2.13	0.92	2.01	0.90	2.10	0.90			
Birth control	0.37	0.48	0.47	0.50	0.39	0.49			
Family characteristics									
Parent education	12.61	2.31	13.62	2.06	13.08	2.11	***	*	*
Family income	33.74	28.26	48.41	35.07	39.77	27.65	***	*	*
Parent married	0.49	0.50	0.54	0.50	0.66	0.47			
Parent religiosity	24.23	17.28	25.27	20.09	29.94	20.06			**
Mother work	0.68	0.41	0.79	0.35	0.69	0.44	**		
Parent missing data	0.38	0.49	0.32	0.47	0.35	0.48			

***1%, **5%, *10%.

achievement test (Peabody Picture Vocabulary Test, PPVT), were from families with higher incomes, and had more educated parents than men whose partners miscarried or had a live birth.

In order to further utilize our unique data of teenage men who report a partner-pregnancy, we more directly examine the correlations between partners' birth outcomes and the observable characteristics of the young men in Table 4. We use multinomial logistic regression analysis, where the omitted category is having a live birth, and report marginal effects. Our results show a negative association between the male's

TABLE 4

Predictors of Birth Outcomes for Teenage Men with Pregnant Partners—Sample of Males Who Experienced a Partner-Pregnancy Prior to Their 18th Birthday

	Abortion	Miscarriage	Abortion	Miscarriage
Age	0.014	−0.046***	0.010	−0.041**
	(0.012)	(0.016)	(0.011)	(0.016)
General health	−0.015	0.001	−0.015	0.016
	(0.028)	(0.031)	(0.030)	(0.034)
Black	0.100*	0.017	0.142**	0.006
	(0.054)	(0.064)	(0.070)	(0.087)
Hispanic	−0.043	0.082	−0.138*	0.159*
	(0.082)	(0.070)	(0.081)	(0.082)
PPVT score	0.007***	−0.000	0.007***	−0.001
	(0.002)	(0.002)	(0.002)	(0.002)
Family income	0.002**	0.000	0.001*	−0.000
	(0.001)	(0.001)	(0.001)	(0.001)
Maternal education	0.019*	0.007	0.009	0.010
	(0.011)	(0.012)	(0.010)	(0.014)
Parent age	−0.004	0.005	−0.005	0.006
	(0.004)	(0.005)	(0.004)	(0.005)
Married parents	−0.051	0.132**	−0.008	0.167***
	(0.050)	(0.055)	(0.054)	(0.062)
Parent religious attendance	−0.001	0.002	−0.001	0.002
	(0.001)	(0.002)	(0.001)	(0.002)
Parent missing data	−0.009	0.035	−0.043	0.068
	(0.051)	(0.055)	(0.048)	(0.057)
Private school	−0.090	0.082	−0.086	0.058
	(0.136)	(0.113)	(0.104)	(0.112)
Median income			0.011*	0.003
			(0.006)	(0.008)
% Poverty			0.005	−0.023
			(0.009)	(0.014)
% Black			0.000	0.009**
			(0.003)	(0.004)
Rural			0.051	0.037
			(0.064)	(0.083)
Urban			−0.037	−0.068
			(0.061)	(0.060)
Aid to Families with Dependent Children benefit			0.001*	−0.000
			(0.001)	(0.001)
Unemployment rate			−0.021	0.053**
			(0.024)	(0.022)
% Welfare			−0.004	−0.004
			(0.003)	(0.004)
Observations	350	350	335	335

Notes: Marginal Effects from a Multinomial Logit regression with live birth as the omitted outcome. Additional Controls: Constant, Violent Crime, Total Crime (not statistically significant).
*$p < .1$, **$p < .05$, ***$p < .01$.

age and his partner having a miscarriage (vs. live birth). The education level of the young man's mother and his ability level (as measured by the PPVT score[12]) are positively related to his partner having an abortion rather than a live birth, which is consistent with previous evidence that more advantaged young pregnant women are more likely to have an abortion as well as with studies on the characteristics of teenage fathers. In columns 3 and 4, we include community level variables (merged from the Census as well as state-level policies) and show that higher proportions of black residents and a higher unemployment rate are positively associated with having a miscarriage (vs. a live birth) and median income is positively associated with attaining an abortion. We next examine the effects of these birth outcomes on the young adult outcomes of these teenage men with pregnant partners.

VI. METHOD

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

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

where Y is the outcome of interest, such as years of schooling or earnings as a young adult, B is an indicator of becoming a father as a teen, and β is the coefficient of interest. The "core problem" is that those who become a father 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 likely overestimate the true influence of having a partner who gives 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:

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

where X is the vector of additional control variables.

However, this still leaves unobserved factors that may influence those whose partners become pregnant, those whose partners 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 young men whose partners 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 having a partner who became pregnant by the age 18. This eliminates a good deal of the unobserved differences between treatment and control groups. Furthermore, we limit the comparison to those whose partners "chose" not to voluntarily terminate the pregnancy—that is, we compare those whose partners gave birth to those whose partners had a miscarriage.

VII. RESULTS

A. Baseline Empirical Models

Before proceeding to our preferred comparisons, where we use miscarriage information to construct control groups, we estimate baseline empirical models that use the full (and hence larger) sample of males from our data set. Table 5 presents results of the effects of becoming a father as a teenager on several educational, marital, and labor market outcomes. The implicit control group for the first three columns includes all males who did not become fathers as a teen.[13] Column 1 presents unadjusted differences between these two groups. Column 2 uses a rich set of control variables that follow the previous literature, including demographic and family background information, such as

---

12. For some pregnancies, the PPVT score may be measured following the event, because all scores are measured at the same time (Wave 1 data collection). These results assume that the score does not change, consistent with the presumed nature of the test. Auxiliary analyses that do not control for the PPVT score or the measure of general health are nearly identical and available upon request, as are results that only use the subsample of individuals where the partner-pregnancy ended following the Wave 1 data collection. Nevertheless, the results should best be viewed as suggestive.

13. To the extent there is underreporting of teenage fatherhood using the full sample may mean that some members of the comparison group are fathers. This could lead to an underestimate of the influence of teenage fatherhood on the outcomes studied. Our narrower control groups avoid this problem in the sense of clearly defined groups, but by omitting some fathers from the study may still incorrectly capture the true influence of teenage fatherhood. All of our attempts to find selection in who reports (see above) and reweighting maintain the general pattern of results (see below).

TABLE 5

Effects of Teenage Fatherhood on Young Adult Outcomes Baseline Results Comparing Teenage Fathers with Teenage Males

Specification Sample	OLS Full No Controls	OLS Full Controls	OLS Full Community FE	OLS Sexually Active No Controls	OLS Sexually Active Controls	OLS Sexually Active Community FE
Diploma	−0.261***	−0.199***	−0.194***	−0.226***	−0.172***	−0.162***
	(0.033)	(0.033)	(0.032)	(0.035)	(0.035)	(0.035)
Observations	7703	7703	7703	5567	5567	5567
GED	0.079***	0.063**	0.060**	0.062**	0.049*	0.044
	(0.027)	(0.027)	(0.027)	(0.028)	(0.028)	(0.029)
Observations	7701	7701	7701	5567	5567	5567
Education	−1.480***	−0.988***	−0.873***	−1.236***	−0.843***	−0.733***
	(0.140)	(0.133)	(0.122)	(0.140)	(0.137)	(0.122)
Observations	7697	7697	7697	5565	5565	5565
Married	0.180***	0.197***	0.178***	0.159***	0.177***	0.155***
	(0.046)	(0.049)	(0.048)	(0.046)	(0.049)	(0.049)
Observations	7697	7697	7697	5567	5567	5567
Cohabit	0.304***	0.284***	0.254***	0.233***	0.228***	0.200***
	(0.046)	(0.043)	(0.044)	(0.049)	(0.044)	(0.044)
Observations	7687	7687	7687	5560	5560	5560
Employed	−0.056	−0.037	−0.041	−0.069*	−0.048	−0.051
	(0.036)	(0.035)	(0.035)	(0.037)	(0.037)	(0.036)
Observations	7277	7277	7277	5306	5306	5306
Military employment	0.001	0.004	0.002	−0.000	0.004	0.000
	(0.013)	(0.013)	(0.014)	(0.014)	(0.014)	(0.015)
Observations	7698	7698	7698	5564	5564	5564
Fulltime employment	0.006	0.015	0.006	−0.026	−0.010	−0.015
	(0.046)	(0.045)	(0.041)	(0.046)	(0.045)	(0.042)
Observations	7277	7277	7277	5306	5306	5306
Idle	0.135***	0.099***	0.095***	0.129***	0.097**	0.093**
	(0.035)	(0.035)	(0.035)	(0.037)	(0.038)	(0.037)
Observations	7401	7399	7399	5370	5369	5369
Total income	−0.042	1.470	1.350	−0.893	0.664	0.563
	(1.188)	(1.101)	(1.118)	(1.252)	(1.172)	(1.251)
Observations	7194	7194	7194	5214	5214	5214
Total wages	−0.276	0.940	0.798	−1.099	0.120	−0.106
	(1.163)	(1.108)	(1.075)	(1.168)	(1.121)	(1.175)
Observations	7,346	7,346	7,346	5,309	5,309	5,309

Notes: Each cell represents a separate regression. Controls: age, race, test scores, maternal education, family income, family structure, parent religiosity, maternal employment, missing parent information dummy.
*p < .1, **p < .05, ***p < .01.

maternal education and family income, maternal employment, and an ability proxy. Column 3 adds school fixed effects so that the comparison is between teenage fathers and nonfathers who attended the same high school.

The first row in Table 5 shows the estimated effects of teenage fatherhood on attaining a high school diploma. The unadjusted difference between teen fathers and other teens in the likelihood of attaining a high school diploma is 26 percentage points.

After adjusting for covariates, the difference shrinks to 20 percentage points. Finally, after controlling for all common community level factors, the difference between teen fathers and other teens who attend the same school is still nearly 20 percentage points.[14] The second set of results indicate that teenage fathers are

14. Thornberry, Smith, and Howard (1997) explored whether community factors appeared tied to teenage fatherhood and found no significant influence, a finding consistent with our results.

nearly 8 percentage points more likely to receive a GED than other teens, and this difference shrinks to 6 percentage points after controls for observable characteristics and community-level factors. We next examine years of schooling. We find substantial unadjusted differences between teen fathers and other teenagers of nearly 1.5 years. This difference decreases to approximately 0.9 years after controls are added, but the difference remains large. The remaining set of results for the male sample show that teenage fatherhood is associated with an 18 percentage point increase in the likelihood of marriage and a 30 point increase in the probability of cohabitation. For labor market outcomes, our results suggest a positive relationship with idleness and a negative association with employment, but no ties to income.

In the second set of columns in Table 5, we repeat our analysis, but limit the control group to those young men who were sexually active as a teenager, and thus at risk of becoming a teen father. This sample restriction nearly uniformly reduces our estimated ties between teen fatherhood and our young adult outcomes. For example, we now estimate that the effect of teen fatherhood on receipt of a high school diploma is 16.4 percentage points (vs. 19.6 in column 3).

B. Preferred Empirical Models: Using Miscarriages to Create the Comparison Groups

Table 6 reports our preferred set of results, where instead of comparing teenage fathers with all other males or all sexually active males, we compare teenage fathers with young men whose partners experienced a pregnancy. In column 1, we compare teenage fathers with other males whose partners either experienced an abortion or miscarriage and find that teenage fathers are 16 percentage points less likely to receive a high school diploma. Column 2 employs the Hotz, McElroy, and Sanders (2005) strategy of using miscarriage as an instrumental variable and finds a statistically insignificant decrease in high school diploma of 13 percentage points for teenage fathers; recall that Ashcraft and Lang (2006) suggest that this approach should provide a lower bound estimate. In column 3, we compare only teenage fathers with young males whose partner experienced a miscarriage (and not those whose partners had an abortion). This is our preferred specification.[15] We find the

15. As Table 3 suggests some small differences in "treatment" and "control" groups along family background

TABLE 6

Effects of Teenage Fatherhood on Young Adult Outcomes Comparing Teenage Fathers and Teenage Males with Pregnant Partners

Specification	OLS	2SLS	OLS
Sample	Birth/No Birth	B/A/M	Birth or Miscarriage
Diploma	−0.162**	−0.132	−0.152
	(0.074)	(0.113)	(0.096)
Observations	335	335	258
GED	0.072	0.166**	0.114**
	(0.054)	(0.070)	(0.051)
Observations	335	335	258
Education	−0.936***	−0.670	−0.778**
	(0.306)	(0.463)	(0.358)
Observations	335	335	258
Cohabit	0.131*	0.119	0.127
	(0.072)	(0.108)	(0.080)
Observations	335	335	258
Married	0.144**	0.250***	0.202***
	(0.069)	(0.077)	(0.068)
Observations	335	335	258
Employed	0.052	−0.026	−0.002
	(0.065)	(0.105)	(0.073)
Observations	320	320	246
Military	−0.008	0.052**	0.024*
	(0.025)	(0.024)	(0.014)
Observations	335	335	258
Full-time work	0.161**	0.013	0.060
	(0.080)	(0.121)	(0.090)
Observations	320	320	246
Idle	0.002	0.027	0.030
	(0.055)	(0.104)	(0.069)
Observations	324	324	248
Total Income	1.096	2.813	2.153
	(2.161)	(2.536)	(2.224)
Observations	314	314	243
Total Wages	1.446	2.537	2.220
	(1.926)	(2.027)	(1.889)
Observations	322	322	249

Notes: Each cell represents a separate regression. No Birth includes abortions and miscarriages; B/A/M includes births, abortions, and miscarriages. 2SLS: miscarriage is used as an instrument for live birth status. Controls: constant, age, age-squared.
* $p < .1$, ** $p < .05$, *** $p < .01$.

effect of teenage fatherhood to be a reduction of 15 percentage points for receipt of a high school diploma ($p < .11$). A comparison of these results to those for teenage mothers using the same specification shows very similar results

characteristics, we also examined a specification that controlled for all family and individual characteristics listed in Table 3. Our main results are qualitatively unchanged and available upon request.

(see Table A2 in the Appendix). The exception is "currently married" where results do differ.

We next use the same empirical strategy to show that teenage fathers are between 7 and 17 percentage points more likely to attain a GED, with our preferred specification providing an estimate of 11 percentage points. For years of schooling, we bound the effects of teenage fatherhood between −0.94 and −0.67 years with a preferred estimate of −0.78 years. While this effect is large in magnitude, it is over 50% lower than the unadjusted differences and over 20% lower than the adjusted differences from column 3 in Table 5.

Our estimates for the increase in the likelihood of marriage is between 14 and 25 percentage points with a preferred estimate of 20 percentage points (compared with 18 percentage points in the basic results). In contrast, our preferred estimate of the effects of teenage fatherhood on cohabitation behavior is 13 percent points ($p < .13$) (vs. 20 points in previous results). We find some evidence that teenage fatherhood increases full-time employment probabilities as well as military employment, but find no statistically significant effects on overall employment status, idleness, total family income, or labor income using our preferred specifications.

In our final set of results, we separate our preferred specifications by whether the respondent reported using birth control prior to the pregnancy in Table 7.[16] Our results suggest that the negative effects of teenage fatherhood are heterogeneous between these categories of individuals. Males who reported using birth control have smaller estimated educational consequences, are more likely to get married, and show no significant income differences. These males also are less likely to be idle and are more likely to be employed full time and in the military. Males who reported not using birth control complete fewer years of schooling and experience large shifts between receiving a high school diploma and a GED. These men also are more likely to be idle. While the results are not statistically significant, these males may have increased short-term earnings as a result of becoming a father.

16. As some of these samples are quite small we urge caution in interpreting these estimates.

C. Robustness Checks

As we have outlined above, we perform several types of robustness checks to further assess our results. First, to further probe the potential bias from any issue of misreporting pregnancy outcomes of partners, we reweigh the data for males so that the birth outcome distribution (live births, miscarriages, and abortions) is the same as the females in the sample. We show in Table A6 in the Appendix that the results are unchanged after reweighting the data. We also examine results for the set of males who were unmarried at the time of the pregnancy. This only eliminates a small number of men and the results are essentially unchanged—see Table A1. We also examine whether broadening the age cutoff of young males changes our results. In Table A3 in the Appendix, we show that our results are qualitatively unchanged if we broaden the age range of the teenager males to include males younger than 20 years and 9 months at the time their partners experience a pregnancy.

VIII. CONCLUSION

This paper is the first to use recent innovations from research that estimates the effects of teenage motherhood on young adult outcomes to examine the effects of teenage fatherhood. Our key contribution is to compare economic outcomes of young fathers to young men whose partners experienced a miscarriage rather than a live birth. The teenage fathers in our sample have been followed to an average age of 22, so our estimates are necessarily limited to short-term effects of teenage fatherhood. Although the sample is small and likely a subsample of teenage males involved in a pregnancy, our tests for comparability of birth outcomes and time informed of the pregnancy with that of the females in the same data set who reported a pregnancy as a teen all suggest we have a representative male sample. In addition, results using weights based on birth outcomes from the female sample are nearly identical to our core analysis. As we note above, while the data represent imperfect measures of partner-pregnancies, it is those males who know that they are teenage fathers who are the most likely to face consequences, which is the focus of our analysis. We further note that we caution against attempts to broadly generalize the results as well as our inability to examine longer-term effects given available data.

TABLE 7

Effects of Teenage Fatherhood on Young Adult Outcomes Preferred Results Stratified by Birth Control Choices

Specification Sample Birth Control	OLS Birth/No Birth Yes	2SLS B/A/M Yes	OLS Birth or Miscarriage Yes	OLS Birth/No Birth No	2SLS B/A/M No	OLS Birth or Miscarriage No
Diploma	−0.068	−0.140	−0.105	−0.271***	−0.137	−0.192*
	(0.124)	(0.167)	(0.138)	(0.088)	(0.138)	(0.113)
Observations	130	130	95	192	192	154
GED	−0.016	0.038	0.009	0.156**	0.226***	0.192***
	(0.104)	(0.126)	(0.105)	(0.069)	(0.067)	(0.059)
Observations	130	130	95	192	192	154
Education	−0.715	−0.636	−0.660	−1.152***	−0.725	−0.831*
	(0.489)	(0.615)	(0.505)	(0.391)	(0.600)	(0.481)
Observations	130	130	95	192	192	154
Cohabit	−0.001	−0.006	−0.007	0.147	0.155	0.147
	(0.108)	(0.138)	(0.115)	(0.102)	(0.145)	(0.121)
Observations	130	130	95	192	192	154
Married	0.270**	0.279**	0.276**	0.113	0.220**	0.187**
	(0.109)	(0.131)	(0.119)	(0.084)	(0.097)	(0.083)
Observations	130	130	95	192	192	154
Full-time work	0.150*	0.123	0.140	0.155	−0.040	0.035
	(0.085)	(0.155)	(0.116)	(0.110)	(0.152)	(0.126)
Observations	125	125	91	183	183	146
Idle	−0.055	−0.056	−0.055	0.021	0.073	0.053
	(0.083)	(0.141)	(0.108)	(0.088)	(0.130)	(0.106)
Observations	126	126	91	186	186	148
Military	−0.008	0.060*	0.031	−0.004	0.046	0.020
	(0.040)	(0.035)	(0.023)	(0.030)	(0.032)	(0.018)
Observations	130	130	95	192	192	154
Total income	−2.161	1.766	−0.204	2.250	3.655	3.223
	(3.174)	(4.113)	(3.009)	(2.620)	(3.541)	(3.079)
Observations	123	123	91	179	179	143
Total wages	−2.012	1.128	−0.469	2.246	3.477	3.083
	(2.847)	(3.537)	(2.656)	(2.222)	(2.799)	(2.482)
Observations	126	126	92	184	184	148

Notes: Each cell represents a separate regression. No Birth includes abortions and miscarriages; B/A/M includes births, abortions, and miscarriages. 2SLS: miscarriage is used as an instrument for live birth status. Controls: constant, age, age-squared.

*p < .1, **p < .05, ***p < .01.

The analysis provides evidence that teenage fatherhood leads to a decrease in years of schooling and the likelihood of receiving a high school diploma but increases GED receipt. Teenage fatherhood also appears to increase early marriage and cohabitation, increase full-time and military employment status, but has no detectable short-term effects on labor income. We also provide evidence that birth control choices preceding the birth predict important differences in the effects of teenage fatherhood on these young fathers. These results suggest then that teenage fatherhood likely decreases human capital of the young fathers though the redirection to the military, and experience in the workforce may somewhat counter that influence in the short term. Nevertheless because this evidence does suggest a longer-term reduction in human capital, these fathers may yet experience longer-term earnings and income differences as they age. Future data collection efforts will be needed to fully characterize these dynamics. Further, this reduction in human capital may also limit opportunities for the child(ren) born to these teenagers and reduce the human capital to the nation as a whole. The recent increase in the teenage birth rate suggests that the nation would do well to consider additional and innovative programs to reduce teen pregnancies and births.

APPENDIX

TABLE A1

Effects of Teenage Fatherhood on Young Adult Outcomes Comparing Teenage Fathers and Teenage Males with Pregnant Partners Results with Unmarried Fathers at Time of Birth

Specification Sample	OLS Birth/No Birth	2SLS B/A/M	OLS Birth or Miscarriage
Diploma	−0.197**	−0.124	−0.155
	(0.081)	(0.113)	(0.094)
Observations	312	312	235
GED	0.114**	0.193***	0.151***
	(0.056)	(0.068)	(0.054)
Observations	312	312	235
Education	−0.930***	−0.660	−0.739*
	(0.328)	(0.526)	(0.400)
Observations	312	312	235
Cohabit	0.106	0.127	0.114
	(0.084)	(0.115)	(0.094)
Observations	312	312	235
Married	0.118*	0.201***	0.170***
	(0.068)	(0.062)	(0.058)
Observations	312	312	235
Employed	0.048	−0.012	0.018
	(0.069)	(0.109)	(0.085)
Observations	297	297	223
Military	−0.010	0.048**	0.019
	(0.025)	(0.024)	(0.013)
Observations	312	312	235
Full-time work	0.148*	0.012	0.078
	(0.079)	(0.123)	(0.094)
Observations	297	297	223
Idle	−0.008	0.009	0.001
	(0.060)	(0.108)	(0.079)
Observations	301	301	225
Total income	−0.596	1.660	0.719
	(2.212)	(2.541)	(2.200)
Observations	291	291	220
Total wages	−0.419	1.480	0.686
	(1.916)	(2.010)	(1.786)
Observations	299	299	226

Notes: Each cell represents a separate regression. No Birth includes abortions and miscarriages; B/A/M includes births, abortions, and miscarriages. 2SLS: miscarriage is used as an instrument for live birth status. Controls: constant, age, age-squared.
* $p < .1$, ** $p < .05$, *** $p < .01$.

TABLE A2

Effects of Teenage Motherhood on Young Adult Outcomes Comparing Teenage Mothers and Teenage Females

Specification Sample	OLS Birth/No Birth	2SLS B/A/M	OLS Birth or Miscarriage
Diploma	−0.152***	0.013	−0.062
	(0.041)	(0.072)	(0.053)
Observations	987	987	727
Male versus female (*p* value)	.733		.443
GED	−0.017	−0.064	−0.044
	(0.038)	(0.067)	(0.049)

TABLE A2

Continued

Specification Sample	OLS Birth/No Birth	2SLS B/A/M	OLS Birth or Miscarriage
Observations	989	989	729
Male versus female	.416		.440
Education	−0.872***	−0.037	−0.397*
	(0.149)	(0.288)	(0.208)
Observations	990	990	730
Male versus female	.983		.133
Cohabit	0.069	−0.099	−0.025
	(0.043)	(0.091)	(0.065)
Observations	989	989	730
Male versus female	.362		.184
Married	0.076**	0.062	0.070
	(0.036)	(0.067)	(0.049)
Observations	989	989	729
Male versus female	.0395		.0179
Employed	−0.056	0.071	0.019
	(0.044)	(0.090)	(0.066)
Observations	935	935	685
Male versus female	.781		.549
Military	−0.011*	−0.013	−0.013
	(0.006)	(0.014)	(0.009)
Observations	988	988	728
Male versus female	.740		.344
Full-time work	−0.048	−0.011	−0.024
	(0.047)	(0.091)	(0.063)
Observations	935	935	685
Male versus female	.379		.939
Idle	0.099***	−0.070	0.002
	(0.035)	(0.090)	(0.063)
Observations	942	942	689
Male versus female	.723		.560
Total income	−2.297**	−1.355	−1.721
	(0.936)	(2.303)	(1.546)
Observations	935	935	685
Male versus female	.528		.666
Total wages	−3.276***	−1.700	−2.360
	(0.923)	(2.209)	(1.492)
Observations	954	954	703
Male versus female	.367		.819

Notes: Each cell represents a separate regression. No Birth includes abortions and miscarriages; B/A/M includes births, abortions, and miscarriages. 2SLS: miscarriage is used as an instrument for live birth status. The results in this table show estimates based on the same specification as Table 6 except the sample is confined to females rather than males. Male versus Female: displays the p value of a test of identical coefficients between males (Table 6) and females. Controls: constant, age, age-squared.

$^*p < .1,$ $^{**}p < .05,$ $^{***}p < .01.$

TABLE A3

Effects of Teenage Fatherhood on Young Adult Outcomes Comparing Teenage Fathers and Teenage Males with Pregnant Partners—Sample of Males Who Experienced a Partner-Pregnancy Prior to Their 20th Birthday

Specification Sample	OLS Birth/no birth	2SLS B/A/M	OLS Birth or miscarriage
Diploma	−0.206***	−0.121	−0.139**
	(0.050)	(0.074)	(0.062)
Observations	838	838	653
GED	0.068*	0.138***	0.105***
	(0.040)	(0.046)	(0.037)
Observations	838	838	653
Education	−1.177***	−0.456	−0.668**
	(0.222)	(0.345)	(0.278)
Observations	838	838	653
Cohabit	0.138**	0.135*	0.127*
	(0.055)	(0.078)	(0.064)
Observations	838	838	653
Married	0.194***	0.190**	0.178***
	(0.052)	(0.075)	(0.064)
Observations	838	838	653
Employed	0.072*	−0.011	0.013
	(0.043)	(0.077)	(0.053)
Observations	805	805	625
Military	−0.016	0.030	0.012
	(0.023)	(0.019)	(0.012)
Observations	837	837	652
Full-time work	0.260***	0.110	0.153**
	(0.058)	(0.093)	(0.073)
Observations	805	805	625
Idle	−0.019	0.031	0.023
	(0.036)	(0.074)	(0.048)
Observations	816	816	633
Total income	0.685	2.389	1.579
	(1.432)	(1.748)	(1.411)
Observations	784	784	607
Total wages	1.052	2.143	1.682
	(1.445)	(1.486)	(1.224)
Observations	800	800	620

Notes: Each cell represents a separate regression. No Birth includes abortions and miscarriages; B/A/M includes births, abortions, and miscarriages. 2SLS: miscarriage is used as an instrument for live birth status. Controls: constant, age, age-squared.
*$p < .1$, **$p < .05$, ***$p < .01$.

TABLE A4

Descriptive Statistics with Reweighted Sample Compared with Table 1

Variable	Obs	Mean	SD	Min	Max
Birth outcomes					
Live birth	362	0.59	0.49	0	1
Miscarriage	362	0.15	0.36	0	1
Abortion	362	0.26	0.44	0	1

TABLE A4

Continued

Variable	Obs	Mean	SD	Min	Max
Outcomes					
High school diploma	362	0.62	0.48	0	1
GED	362	0.16	0.37	0	1
Years of schooling	362	11.99	1.81	7	21
Married	362	0.26	0.44	0	1
Cohabit (ever)	362	0.62	0.49	0	1
Employed	345	0.73	0.44	0	1
Employed full time	345	0.57	0.50	0	1
Total income	340	16.90	18.19	0	250
Total labor income	348	14.29	17.16	0	250
Idleness	349	0.21	0.41	0	1
Military	362	0.04	0.19	0	1
Individual characteristics					
Age	362	21.73	1.89	18	26
White	362	0.39	0.49	0	1
Black	362	0.34	0.47	0	1
Hispanic	362	0.20	0.40	0	1
PPVT test score	362	98.42	12.49	64	133
General health (1 = excellent)	362	2.09	0.91	1	5
Birth control	347	0.40	0.49	0	1
Family characteristics					
Parent education	362	12.94	2.26	0	17
Family income	362	38.41	30.61	−30	250
Parent married	362	0.66	0.43	0	1
Parent religiosity	362	25.37	18.54	0	50
Mother work	362	0.71	0.40	0	1
Parent missing data	362	0.36	0.48	0	1

TABLE A5

Descriptive Statistics with Reweighted Sample Stratified by Birth Outcome Compared with Table 3

Variable	Obs	Mean	SD	Obs	Mean	SD	Obs	Mean	SD
Birth outcomes									
Live birth	177	1.00	0.00	81	0.00	0.00	104	0.00	0.00
Miscarriage	177	0.00	0.00	81	0.00	0.00	104	1.00	0.00
Abortion	177	0.00	0.00	81	1.00	0.00	104	0.00	0.00
Outcomes									
High school diploma	177	0.55	0.50	81	0.77	0.43	104	0.68	0.47
GED	177	0.18	0.38	81	0.15	0.36	104	0.13	0.34
Years of schooling	177	11.57	1.62	81	12.86	1.99	104	12.13	1.70
Married	177	0.34	0.47	81	0.16	0.37	104	0.12	0.32
Cohabit (ever)	177	0.68	0.47	81	0.56	0.50	104	0.53	0.50
Employed	168	0.73	0.44	78	0.71	0.46	99	0.77	0.43
Employed full time	168	0.62	0.49	78	0.47	0.50	99	0.57	0.50
Total income	165	16.57	14.41	75	17.99	19.68	100	16.38	26.72
Total labor income	171	14.22	14.55	77	14.50	15.97	100	14.21	26.31
Idleness	169	0.24	0.43	80	0.18	0.38	100	0.18	0.39
Military	177	0.03	0.18	81	0.06	0.24	104	0.02	0.14

TABLE A5

Continued

Variable	Obs	Mean	SD	Obs	Mean	SD	Obs	Mean	SD
Individual characteristics									
Age	177	21.79	1.95	81	21.90	1.68	104	21.19	1.92
White	177	0.41	0.49	81	0.37	0.49	104	0.38	0.49
Black	177	0.31	0.46	81	0.41	0.49	104	0.34	0.48
Hispanic	177	0.23	0.42	81	0.12	0.33	104	0.24	0.43
PPVT test score	177	96.52	12.09	81	102.86	11.36	104	98.33	14.05
General health (1 = excellent)	177	2.13	0.92	81	2.01	0.90	104	2.10	0.90
Birth control	170	0.37	0.48	77	0.47	0.50	100	0.39	0.49
Family characteristics									
Parent education	177	12.61	2.31	81	13.62	2.06	104	13.08	2.12
Family income	177	33.74	28.24	81	48.41	35.04	104	39.77	27.76
Parent married	177	0.63	0.44	81	0.69	0.41	104	0.71	0.44
Parent religiosity	177	24.23	17.27	81	25.27	20.08	104	29.94	20.15
Mother work	177	0.68	0.41	81	0.79	0.35	104	0.69	0.44
Parent missing data	177	0.38	0.49	81	0.32	0.47	104	0.35	0.48

TABLE A6

Comparison of Main Results with and without Reweighting

Specification Sample Weights	OLS Birth/No Birth Original	2SLS B/A/M Original	OLS Birth or Miscarriage Original	OLS Birth/No Birth Reweighted	2SLS B/A/M Reweighted	OLS Birth or Miscarriage Reweighted
Diploma	−0.162**	−0.132	−0.152	−0.172**	−0.142	−0.158
	(0.074)	(0.113)	(0.096)	(0.074)	(0.113)	(0.097)
Observations	335	335	258	335	335	258
GED	0.072	0.166**	0.114**	0.057	0.159**	0.113**
	(0.054)	(0.070)	(0.051)	(0.064)	(0.069)	(0.052)
Observations	335	335	258	335	335	258
Education	−0.936***	−0.670	−0.778**	−0.993***	−0.706	−0.784**
	(0.306)	(0.463)	(0.358)	(0.337)	(0.461)	(0.363)
Observations	335	335	258	335	335	258
Cohabit	0.131*	0.119	0.127	0.122	0.127	0.128
	(0.072)	(0.108)	(0.080)	(0.079)	(0.107)	(0.082)
Observations	335	335	258	335	335	258
Married	0.144**	0.250***	0.202***	0.131*	0.247***	0.208***
	(0.069)	(0.077)	(0.068)	(0.073)	(0.078)	(0.069)
Observations	335	335	258	335	335	258
Employed	0.052	−0.026	−0.002	0.078	−0.024	0.000
	(0.065)	(0.105)	(0.073)	(0.068)	(0.105)	(0.075)

TABLE A6

Continued

Specification Sample Weights	OLS Birth/No Birth Original	2SLS B/A/M Original	OLS Birth or Miscarriage Original	OLS Birth/No Birth Reweighted	2SLS B/A/M Reweighted	OLS Birth or Miscarriage Reweighted
Observations	320	320	246	320	320	246
Military	−0.008	0.052**	0.024*	−0.022	0.050**	0.024*
	(0.025)	(0.024)	(0.014)	(0.034)	(0.023)	(0.014)
Observations	335	335	258	335	335	258
Full-time work	0.161**	0.013	0.060	0.206**	0.018	0.063
	(0.080)	(0.121)	(0.090)	(0.080)	(0.122)	(0.092)
Observations	320	320	246	320	320	246
Idle	0.002	0.027	0.030	−0.013	0.033	0.030
	(0.055)	(0.104)	(0.069)	(0.057)	(0.104)	(0.071)
Observations	324	324	248	324	324	248
Total income	1.096	2.813	2.153	0.509	2.784	2.135
	(2.161)	(2.536)	(2.224)	(2.342)	(2.469)	(2.206)
Observations	314	314	243	314	314	243
Total wages	1.446	2.537	2.220	0.977	2.429	2.139
	(1.926)	(2.027)	(1.889)	(2.089)	(1.981)	(1.855)
Observations	322	322	249	322	322	249

Notes: Each cell represents a separate regression. Controls: age, race, test scores, maternal education, family income, family structure, parent religiosity, maternal employment, missing parent information dummy. No Birth includes abortions and miscarriages; B/A/M includes births, abortions, and miscarriages. 2SLS: miscarriage is used as an instrument for live birth status.

$^*p < .1,$ $^{**}p < .05,$ $^{***}p < .01.$

TABLE A7

Data Dictionary for Outcome Variables

Outcomes	Wave	Question in survey
High school diploma	3	"What degrees or diplomas have you received? High School Diploma?" = 1 if yes
GED	3	"What degrees or diplomas have you received? GED or high school equivalency degree?" = 1 if yes
Years of schooling	3	"What is the highest grade or year of regular school you have completed?"
Married (ever)	3	Created using "How many times have you been married?" = 1 if > 0
Cohabit (ever)	3	"Have you ever lived with someone in a marriage-like relationship for one month or more?"
Employed	3	"Are you currently working for pay for at least 10 hours a week?"
Employed full time	3	=1 if currently working 35+ hours a week
Military employment	3	"Are you currently serving in the full-time active-duty military?"
Total income	3	"…what was your total personal income before taxes in 2000/2001?"
Total labor income	3	"In 2000/2001, how much income did you receive from earnings—that is, wages or salaries, including tips, bonuses, and overtime pay, and income from self employment?"
Idleness	3	=1 if currently unemployed and not currently in school

REFERENCES

Ashcraft, A., and K. Lang. "The Consequences of Teenage Childbearing." National Bureau of Economic Research Working Paper No. 12485, Cambridge, MA, 2006.

Brien, M. J., and R. J. Willis. "Costs and Consequences for the Fathers," in *Kids Having Kids: Economic Costs and Social Consequences of Teen Pregnancy*, edited by R. A. Maynard. Washington, DC: Urban Institute Press, 1997, 95−144.

Card, J. J., and L. L. Wise. "Teenage Mothers and Teenage Fathers: The Impacts of Early Childbearing on the Parents' Personal and Professional Lives." *Family Planning Perspectives*, 10(4), 1978, 199−205.

Coley, R. L., and P. L. Chase-Lansdale. "Adolescent Pregnancy and Parenthood: Recent Evidence and Future Directions." *American Psychologist*, 53, 1998, 152−66.

Darroch, J. E., D. J. Landry, and S. Oslak. "Pregnancy Rates among U.S. Women and Their Partners in 1994." *Family Planning Perspectives*, 31(3), 1999, 122−6.

Fletcher, J. M., and B. L. Wolfe. "Education and Labor Market Consequences of Teenage Childbearing: Evidence Using the Timing of Pregnancy Outcomes and Community Fixed Effects." *Journal of Human Resources*, 44, 2009, 303−25.

Hoffman, S. D. "The Socio-Economic Effects of Teen Childbearing Re-Considered: A Re-Analysis of the Teen Miscarriage Experiment." Working Papers 03-08, University of Delaware, Department of Economics, 2003.

Hotz, V. J., S. W. McElroy, and S. G. Sanders. "Teenage Childbearing and Its Life Cycle Consequences: Exploiting a Natural Experiment." *Journal of Human Resources*, 40(3), 2005, 683−715.

Huang, C.-C., and W.-J. Han. "Child Support Enforcement and Sexual Activity of Male Adolescents." *Journal of Marriage and Family*, 69(3), 2007, 763−77.

Landry, D. J., and J. D. Forrest. "How Old Are U.S. Fathers?" *Family Planning Perspectives*, 27, 1995, 159−61, 165.

Lerman, R. "A National Profile of Young Unwed Fathers," in *Young Unwed Fathers: Changing Roles and Emerging Policies*, edited by R. I. Lerman and T. J. Ooms. Philadelphia, PA: Temple University Press, 1993, 27−51.

Lindberg, L. D., F. Sonenstein, G. Martinez, and J. Marcotte. "Completeness of Young Fathers' Reports of Fertility." *Journal of Economic and Social Measurement*, 24(1), 1998, 15−23.

Marsiglio, W. "Adolescent Fathers in the United States: Their Initial Living Arrangements, Marital Experience, and Educational Outcomes." *Family Planning Perspectives*, 19(6), 1987, 240−51.

Nock, S. L. "The Consequences of Premarital Fatherhood." *American Sociological Review*, 63(2), 1998, 250−63.

Plotnick, R. D., I. Garfinkel, S. S. McLanahan, and I. Ku. "The Impact of Child Support Enforcement Policy on Nonmarital Childbearing." *Journal of Policy Analysis and Management*, 26(1), 2009, 79−98.

Resnick, M., L. Bearinger, P. Stark, and R. Blum. "Patterns of Consultation among Adolescent Minors Obtaining an Abortion." *American Journal of Orthopsychiatry*, 64(2), 1994, 310−6.

Ribar, D. "Teenage Fertility and High School Completion." *Review of Economics and Statistics*, 76(3), 1994, 413−24.

Rivera-Casale, C., L. V. Klerman, and R. Manela. "The Relevance of Child-Support Enforcement to School-Age Parents." *Child Welfare*, 58, 1984, 521.

The Alan Guttmacher Institute. "In Their Own Right: Addressing the Sexual and Reproductive Health Needs of American Men." 2002. Report available at http://www.guttmacher.org/pubs/us_men.pdf.

Thornberry, T., C. A. Smith, and G. J. Howard. "Risk Factors for Teenage Fatherhood." *Journal of Marriage and the Family*, 59, 1997, 505−22.

Ventura, S. J., B. E. Hamilton, and P. D. Sutton. "Revised Birth and Fertility Rates for the United States, 2000 and 2001." *National Vital Statistics Reports*, 51(4), 2003, 1−18.

COPYRIGHT INFORMATION