Educational Attainment, Romantic Relationships, and Non-marital Fertility

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Abstract

Trends over the last few decades evidence growing disparities in family life such that individuals from less advantaged backgrounds have markedly less stable family lives. These disparities are illustrated by the link between educational attainment and the incidence of non-marital fertility. Using the National Longitudinal Survey of Youth (1997), we describe the role of cohabiting and sexual relationship formation in educational variation in non-marital fertility in the first three years after young women leave school. We explore the potential influence of the pace, type, and effect of relationship formation. We also describe contraceptive use patterns to better understand their contribution to educational variation in non-marital fertility. We find that the pace and type of relationships formed do not vary sufficiently across education groups to provide an explanation. The stronger positive association between cohabitation and fertility contributes some to the higher rates of non-marital fertility among the least educated women. Less educated cohabiting women more often report contraceptive use patterns that do not align with their desire to avoid pregnancy indicating a greater risk for an unintended pregnancy.

Introduction

Trends over the last few decades evidence growing disparities in family life such that individuals from less advantaged backgrounds have markedly less stable family lives (McLanahan 2004). One component of these disparities is the substantially higher occurrence of non-marital fertility among women with the lowest levels of education. We contribute to the larger literature on the correspondence between educational attainment and stable family life by describing educational differentials in the rate of non-marital fertility in the three years after school-leaving and by examining the potential for cohabiting and sexual relationships to explain these differentials. Are college educated women's lower rates of non-marital fertility due to delays in cohabiting and sexual relationship formation? Alternatively, are they associated with differences in expectations about parenthood and marriage? Or do they arise because of educational variation in contraceptive use?

Our analyses descriptively explore the extent to which differences in non-marital fertility patterns arise because of variation in the pace, type, and effect of cohabiting and sexual relationships formed across educational attainment groups. We use the National Longitudinal Survey of Youth, 1997 cohort, and examine non-marital fertility for female respondents in the first three years after leaving school. We also use information on contraceptive use and fertility intentions from the National Survey of Family Growth to help understand the patterns we find.

Background

The union context of births has shifted in recent decades resulting in a smaller percentage of births occurring to married couples than in the past. Now approximately 2

out of 5 births occur outside of marriage (Mincieli, Manlove, McGarrett, Moore, and Ryan 2007). However, this overall rate masks substantial socioeconomic variation. The increases in non-marital childbearing are most pronounced among Blacks and less educated women (Ellwood and Jencks 2004). Nearly 70% of births to women with less than a high school education are non-marital compared to 7% of those to women with a college degree (Mincieli et al. 2007). Additionally, 72% of births to Black women occur outside of marriage.

Research efforts identify the potential demographic factors underlying increased the increased percentage of births occurring outside of marriage, also called the non-marital fertility ratio, including later and lower rates of marriage, the fertility rate of unmarried and married women, and the age distribution of women (Smith, Morgan, and Koropeckyi-Cox 1996). Smith et al. (1996) suggest that increasing fertility rates among unmarried women and declines in marriage rates are the biggest contributors to the increasing non-marital fertility ratio. The age at first marriage has increased. The median age at first marriage for a woman in 2009 was 25.9 compared to 20.3 in 1960 (U.S. Census Bureau 2010). Increasing premarital cohabitation rates over the last few decades contributed to the higher age at first marriage (Bumpass, Sweet, and Cherlin 1991). Couples are more frequently spending time in sexually active non-marital cohabiting unions during prime childbearing years. While all groups are delaying marriage until later ages resulting in a greater "at risk" time for a non-marital birth the accompanying delay in parenthood that would limit an increase in non-marital fertility is less so for less educated and Black women (Ellwood and Jencks 2004). Smith et al. (1996) suggest that increasing non-marital fertility for Blacks results primarily from later

and lower rates of marriage. The explanation for educational variation is less clear. Ultimately these changes in family formation suggest a less stable family life for less educated and Black women and their children in addition to the other disadvantages faced by these groups.

This work focuses on increasing our understanding of educational variation in non-marital fertility in the first three years after school-leaving. Differences in non-marital fertility rates may result from variation in the pace and type of relationship formation. For example, research suggests that after finishing school, education is positively associated with the likelihood of marriage (Goldstein and Kenney 2001). A quick transition to marriage reduces the exposure to the risk of a non-marital birth while greater time spent unmarried increases exposure. While understanding differences in entry into marriage is essential for understanding non-marital fertility, we take a comprehensive approach that looks at variation in relationship formation of all types. Romantic relationships are an indicator of sexual activity and exposure to the risk of pregnancy. If more highly educated women are delaying entry into dating and sexual relationships and therefore delaying their exposure to the risk of pregnancy this may be at least a partial explanation for educational variation in non-marital fertility. Some research suggests that more highly educated women may delay relationship formation to focus on early career development (Oppenheimer 1988, Brien, Lillard, and Waite 1999) and are therefore not exposed to the risk of pregnancy.

Another factor that might shape non-marital fertility could involve the types of relationships more highly educated women form. In particular, cohabiting women have a higher risk of experiencing a non-marital birth compared to single women (Wildsmith

and Raley 2006). The incidence of cohabitation is inversely related to educational attainment (Bumpass, Sweet, and Cherlin 1991). Thus, one reason why more highly educated women have lower non-marital fertility rates could be their lower levels of cohabitation.

A third potential explanation for educational variation in non-marital fertility may be that the effects of the relationships that are formed vary by educational attainment. Cohabitation and marriage both positively influence fertility relative to being single or in a dating relationship, partly because married and cohabiting couples have a greater frequency of sexual intercourse (Waite 1995). Additionally, marriage has a stronger positive impact than cohabitation, in part because marriage is generally the preferred context for childbearing. But the relative influence of cohabitation vis-a-vie marriage may vary by educational attainment in part because less educated women may be more likely to view cohabitation as a substitute for marriage. If so, then the positive influence of cohabitation may be greater for less educated women and provide a partial explanation for their higher non-marital fertility rates. This is related to the larger body of work that examines whether the role of cohabitation in relation to singlehood and marriage is similar across groups in society. Existing research shows variation by race/ethnicity with cohabitation serving a more marriage-like role among non-Whites, specifically Hispanics, (Manning 2001). This is evidenced through higher fertility rates and greater levels of intended fertility among Hispanic cohabitors. Intended fertility is argued to show support of the acceptability of childbearing in cohabitation and that this union is more marriage-like. There is some evidence that cohabitation is more marriage-like among less educated women (Loomis and Landale 1994). If this is the case, then there

are potentially greater effects of cohabitation on fertility among this group which would offer at least a partial explanation of non-marital fertility differences by education. It is also possible that dating relationships will have a greater influence on fertility for less educated women. Our analysis allows for a test of whether sexual and cohabiting relationships differentially influence non-marital fertility by level of education.

Our main focus is on investigating whether relationship formation contributes to variation in non-marital fertility by educational attainment using the National Longitudinal Survey of Youth. We examine how the pace, type, and differential effect of relationships influence educational variation in non-marital fertility. That is, do women with lower levels of educational attainment have higher rates of non-marital fertility because they form relationships more quickly increasing their risk of a pregnancy? Is it because of the type of relationships formed including that less educated women are slower to marry and thus are "at risk" of a non-marital birth for longer? Or do the relationships that are formed have differential impacts on fertility across educational attainment? That is, we describe the influence of the pace, type, and effect of relationship formation on non-marital fertility in the three years after school-leaving.

In addition to exploring the role of relationship formation, we briefly consider two alternative explanations for the association between educational attainment and non-marital fertility. The first is the possibility that a high desire to become a mother leads some women to leave school earlier and to have children outside of marriage. Thus we test whether the association between education and fertility is weakened with controls for fertility expectations, measured during adolescence. Additionally, recent work on non-marital fertility among less educated women suggests that it is important to look not only

at fertility expectations, but also marital expectations. Edin and Kefalas (2005) argue that women with high desires for pregnancy who have low expectations of their ability to find a marital partner may be more motivated to have a non-marital birth. Our analysis considers this possibility.

A second potential alternative explanation is that more highly educated women are as likely as less educated women to be sexually active, but that they are more likely to use (more effective) contraception. To explore this possibility we present supplemental information on educational variation in contraceptive use patterns and fertility intentions among cohabitors from the National Survey of Family Growth to better understand the patterns we find in the NLSY 97 data.

Data and Methods

The primary data are from the National Longitudinal Survey of Youth 1997 cohort. The NLSY includes respondents born between January 1980 and December 1984. They were first sampled in 1997 between the ages of 12 and 18. Annual surveys are conducted with the eleventh round occurring in 2007. The sample size is 8,984 youths. We limit our analyses to women who have been out of school for at least one year since the first interview and to those who did not have a pregnancy or marriage before leaving school. We follow women for the first three years after leaving school or until censoring at last interview or entry into a marital union as indicated by the date of first marriage. We also exclude women who do not have valid weight values. The analytical sample size is 2,491 women. We convert the data into a person-year file. Each observation (person-year) in our analysis includes information for all of the predictor variables at the start of the year and whether the respondent had experienced a non-

marital pregnancy that resulted in a live birth by the end of the year. As described later, all but two of our variables are time-invariant. Cohabitation and sexual relationship status vary over time and indicate the status at the beginning of each year.

Information on contraceptive use and fertility intentions from a second data source is used to add to the understanding of educational variation in non-marital fertility for cohabiting women. This information comes from the 1995 and 2002 cycles of the National Survey of Family Growth. The NSFG contains information on marriage, cohabitation, family life, sexual activity, contraceptive use, pregnancy, infertility, and health and includes respondents ages 15 to 44. To create a roughly comparable sample of women to the NLSY we limit the NSFG sample to women under 30 who are not enrolled in school and are currently cohabiting. Our analytical sample is 562 White, Black, and Mexican American cohabiting women.

Variables

The main independent variables are educational attainment (less than high school, high school or GED, some college, and 4-year college degree and beyond) and relationship status. Following Oppenheimer (1997) we measure educational attainment at the time of the first long break of twelve months or more not enrolled in any type of formal schooling. Relationship status is a time-varying measure. The indicator of cohabitation comes from the monthly roster variable indicating marital/cohabitation status. The cohabitation status from the month of the start of the long break and the first month of each subsequent year is taken from these variables. We additionally include an indicator of sexual activity. This measure relies on the respondent report for each year of the survey to indicate whether they had one or more sexual partners in the last year. We

also tested an indicator of dating instead of sexual activity. The item measured whether the respondent reported at least one dating partner in the last year. We chose the measure of sexual activity over dating status given that sexual activity is a more closely related to fertility outcomes, both logically and in our preliminary analyses.

We include controls for prior family expectations since early expectations may be a factor in school-leaving and early relationship formation. Respondents were asked about their parenthood expectations in multiple waves of the survey. In 1997, respondents who were 15 years of age and older were asked to indicate the chance that they would be a parent by age 20. Responses ranged from 0 to 100. For respondents who were 12 to 14 in 1997 and not asked this question we used the roughly comparable item about pregnancy expectations from the Round 4 survey in 2000 when these individuals were 15 to 17 years of age. This measure assessed the respondents' expectations of pregnancy in the next 5 years which is roughly comparable to age 20. Based on the distribution of the responses, a dichotomous measure was created that indicates a greater than 10 percent chance of parenthood.

In 2000 respondents were also asked how likely they felt it was that they would be married in the next five years. A dichotomous variable indicates a greater than 50 percent chance of marriage. These two variables were combined to create a four category measure of family expectations. This indicates if the respondent expects neither parenthood nor marriage, parenthood only, marriage only, or both parenthood and marriage. The reference category is expecting neither parenthood nor marriage.

Other variables included in the models as controls are family background, maternal education, and race/ethnicity. Family background indicates a two biological

parent family, another type of two parent household such as one biological and one step-parent, a single mother household, and all other family structures. Maternal education measures less than high school, high school, some college, or a college degree. Race/ethnicity is coded as non-Hispanic White, non-Hispanic Black, Hispanic, and other racial/ethnic group. Key to assessing whether relationships differentially influence non-marital fertility across education groups is the inclusion of interaction terms for relationship status and educational attainment.

There are two variables constructed from the National Survey of Family Growth data for the supplemental descriptive table. They are contraceptive use and fertility intentions. Contraceptive use, is measured by asking the respondents to report up to four contraceptive methods used in the current month. NCHS created a summary variable for contraceptive use that indicates the most effective method of birth control that the respondent reported using. Following Bachrach (1987) respondents are coded as using no method, a less effective method, or a more effective method. Respondents using birth control pills, a sterilizing operation, injectables, IUDs, or implants are coded as using more effective contraception. All other users are coded as using a less effective method. Respondents who report that they are not using any contraceptive methods are asked if they are currently seeking a pregnancy. From this measure and the contraceptive use items we create a three category variable summarizing fertility intentions. The categories are using contraception and not seeking a pregnancy, not using contraception, but not seeking a pregnancy, and not using contraception and seeking a pregnancy.

Missing variables are repaired with mean and mode imputation and flag variables are included in the model to indicate cases where respondents had missing values. Weights are included to adjust for sample selection effects.

Analytic Strategy

Using our person-year file we conduct a discrete time event history analysis using logistic regression modeling. As a first step, zero-order models are run for each of the predictor variables and the outcome of experiencing a non-marital pregnancy. Next, a series of additive models is run. All models include dummy variables indicating the age of the respondent. Model 1 includes the identifiers of educational attainment, family background characteristics, and race/ethnicity. Subsequent models add family expectations, relationship status, and the interaction terms between educational attainment and relationship status. This modeling strategy allows for an examination of mediation and moderation effects. The mediation effects focus on whether relationship status explains the influence of educational attainment on a non-marital pregnancy. The moderation effects examine whether the effect of relationship status varies by educational attainment.

Results

The descriptive statistics for the sample are presented in Table 1. Just under one-quarter of the women experienced a non-marital pregnancy during the observation period. The modal educational attainment for respondents is high school. For family background, half of respondents indicated growing up in a two biological parent family and have a mother with a high school education. For the measure of family expectations, nearly half of women do not expect parenthood or marriage by roughly age 20. Around

20% expect parenthood, but not marriage and approximately 17% expect marriage but not parenthood or both marriage and parenthood. The time-varying measures of relationship status are taken from the last year of observation for the women. Just over one-third of the women indicate at least one sexual partner in the last year. Around one-quarter were cohabiting at the start of the last observation year.

Table 2 describes the family formation events that women experienced in the three years after leaving school. These numbers are presented for the subsample of women who are not censored before three years. Cohabitation, marriage, and parenthood are described. These figures shed light on variation in the pace and type of relationship formation in this time period by educational attainment in addition to fertility. The first row shows the percentage of women in each education group that experience no family formation events. The number is highest for college educated women with just over one-half not experiencing any events. For women with less than a high school degree, around one quarter had no family events. The next rows detail the combination of events that women experience and the final three rows show the percentage of women that cohabited, married and became mothers. The numbers for cohabitation are not largely different by educational attainment. Around 45% of women in the lowest three education groups cohabit, while only 38% of college educated women do. One in ten women with less than a high school education marry and the percentage increases with greater educational attainment with around one in five college educated women marrying. The final row shows the percentage of women with a pregnancy. Nearly one-half of women with less than a high school degree experience a non-marital pregnancy. Only one-quarter of women with a high school diploma experience a pregnancy. This number

declines substantially with increasing educational attainment and only 3% of college educated women become pregnant. One possible explanation for educational variation in non-marital fertility is that fertility rates are similar across groups, but marriage rates increase with educational attainment so that the births to more educated women occur within marriage. If this were the case, Table 2 would show similar percentages of women experiencing a pregnancy, higher rates of marriage with greater educational attainment, and the percentage of women who marry and then become pregnant would show dramatic differences with educational attainment. This is not the case. While marriage rates do increase slightly with educational attainment, fertility rates dramatically decrease and the percentage of women who marry and become pregnant is lower for college educated women than other groups.

Table 3 shows the results of the logistic regression analysis predicting a first non-marital pregnancy in the three years after school-leaving presented as odds ratios. The first column shows the zero-order coefficients between each of the predictors and the outcome. Compared to women with a high school education, women with less than a high school education have over twice the odds of experiencing a premarital pregnancy. Women with greater than a high school education have lower odds of experiencing a pregnancy. College educated women have a 92% reduction in their odds of experiencing a premarital pregnancy. The zero-order models for family background characteristics show increased odds of non-marital pregnancy for women who grew up in families that did not include both of their biological parents and for women whose mothers had less than a high school education. Black and Hispanic respondents also show higher odds of experiencing a non-marital pregnancy compared to White women. The family

expectations measure shows that compared to women who expected neither parenthood nor marriage, women who expected both as well as women who only expected parenthood have a higher risk of pregnancy. There is no statistically significant difference between women who expected neither and those only expecting marriage. Cohabiting doubles the odds of experiencing a premarital pregnancy in the observation period while having at least one sexual partner increases the odds of a pregnancy by 31%.

The next four columns show the additive models predicting non-marital pregnancy. The first model adds controls for family background and race/ethnicity. Dummy variables for respondent age are included in all models but the results are not shown. The addition of these control variables makes little difference in the influence of educational attainment on non-marital pregnancy from the zero-order model except that the difference between high school and some college is no longer statistically significant. However, women with less than a high school education are still twice as likely to have a non-marital pregnancy. College educated women are 80% less likely to experience a pregnancy compared to women with a high school degree. Compared to being in a family with two biological parents, being in another type of two-parent family (such as biological mother and step-father) increases the odds of experiencing a premarital pregnancy. The coefficient for maternal college education is approaching significance and suggests a reduction in the odds of premarital pregnancy compared to women whose mothers received a high school diploma only. Compared to White females, Black females have nearly 40% higher odds of a premarital pregnancy.

Family expectations are added in the second model. Since early family expectations potentially shape both family and schooling decisions in young adulthood

this variable helps with possible endogeneity issues. The addition of these variables makes a nearly imperceptible difference in the coefficients for educational attainment suggesting that these early ideas about marriage and parenthood do not explain the educational variation in pregnancy outcomes. This does not suggest support for the alternative explanation offered in the background section. Although, these expectations do influence the outcome variable, early expectations for marriage and parenthood or parenthood, but not marriage do increase the odds of experiencing a non-marital pregnancy.

Model 4 adds the measures of relationship status. If the addition of these terms mediated the influence of educational attainment that would suggest that the explanation for educational variation is found in relationship formation patterns. As seen in the model, the coefficients for educational attainment change only slightly suggesting that relationship formation is not the explanation. The first two aims of this research are to identify whether the pace and type of relationship formation influence educational variation in non-marital fertility. Being sexually active and cohabiting do increase the odds of a non-marital pregnancy overall with cohabitation more than doubling the odds, but controlling for differences in sexual and cohabiting relationships does not explain the difference.

The final model includes the interaction terms for educational attainment and relationship status. These measures indicate whether the influence of each type of relationship varies across the education groups. Assessing a potential differential influence of relationship status by education is the third aim of this work. For example, does cohabitation have a stronger or weaker influence on a non-marital pregnancy for

women with less than a high school degree compared to those who finished high school? The results suggest that cohabitation does differentially influence fertility outcomes across the education groups. The coefficient for the interaction term for less than high school and cohabiting is statistically significant. The influence of cohabitation on a non-marital pregnancy for women with less than a high school education is nearly twice that for women with a high school degree. Additionally, although not reaching accepted levels of statistical significance, the interaction term for being sexually active and college educated (OR=.11, p=.11) hints that the influence of being sexually active on the risk of a non-marital pregnancy is weaker for college educated women compared to high school women. This could result from factors such as differences in contraceptive use.

To supplement the results from the interaction terms, Table 4 describes variation in contraceptive use and fertility intentions for cohabiting women by educational attainment. These figures use the 1995 and 2002 cycles of the National Survey of Family Growth. The first panel of Table 4 shows contraceptive use. Specifically, it shows variation in the use of no method, a less effective method, or a more effective method of contraception. Over one in four cohabiting women with less than a high school degree report using no method of contraception. For, college educated women this number is one in twenty. Additionally, the use of the most effective methods of contraception increases with educational attainment. These figures suggest that greater numbers of less educated women are at risk of a non-marital birth resulting from less effective contraceptive use patterns. Whether or not this lack of contraceptive use is related to a desire to become pregnant or for other reasons is examined next.

The second panel of Table 4, shows variation in fertility intentions. The first row shows the percentage of women who are using contraception and not seeking a pregnancy. The second row shows women who are not using contraception, but report that they are not seeking a pregnancy. This indicates women at risk of an unintended non-marital birth. The final row shows women who are not using contraception and report that they desire a pregnancy. The numbers in the second row suggest that the risk of an unintended pregnancy decreases with greater educational attainment from one in five to slightly less than one in twenty. Additionally, while under two percent of college educated cohabiting women report seeking a pregnancy, nearly eight percent of cohabiting women with less than a high school degree report pregnancy seeking. Taken together, these figures suggest an inverse relationship between educational attainment and the risk of an unintended and intended birth to cohabiting women. This sheds additional light on the differential effect of educational attainment on non-marital fertility. The greater risk of an unintended pregnancy among less educated cohabiting women does provide some support for our second alternative explanation outlined in the background section.

Discussion and Conclusion

The proportion of births that occur outside of marriage has increased in the last few decades and now approximately 40% of births in the United States are non-marital. The increase in non-marital fertility is not equally distributed in society, but rather disproportionately among less advantaged groups including those with lower educational attainment and suggests less stability family lives. Nearly three in four births to women

with less than a high school degree are non-marital compared to less than one in ten (7%) to college educated women.

Given these disparities in the union context of births across educational attainment, this paper set out to describe the role of relationship formation in this behavior. We focus on the formation of relationships in the three years after school leaving as a way to better understand this variation. We identify three potential ways relationships could differentially influence fertility. First, variation in the pace of relationship formation by educational attainment shapes the exposure to the risk of non-marital pregnancy through exposure to sexual activity. For example, more highly educated unmarried women may delay entering any type of relationship to focus on career formation thereby avoiding the risk of pregnancy. Second, the types of relationships formed may influence the exposure to the risk of non-marital pregnancy. A faster transition to marriage decreases the risk of a non-marital pregnancy and a cohabiting relationship has a stronger influence on fertility than a dating relationship. Third, the effect of the types of relationships formed may vary by educational groups. As suggested by past research cohabitation may be more marriage-like among less educated women in relation to fertility behavior. This could be a source of higher non-marital fertility. The effect of being in a sexual relationship that does not involve co-residence also potentially varies by educational attainment.

To investigate these three potential explanations we descriptively examined women's family formation events by educational attainment and conducted a discrete time event history analysis that examined mediating and moderating effects of relationship status on non-marital fertility. For the examination of how the differential

pace and type of relationship formation may factor into fertility rates, we find no evidence that variation in entry into sexual or cohabiting relationships is behind fertility differences. If this were the case our models predicting a non-marital pregnancy would show a mediation of the effects of education when the measures of sexual and cohabiting relationships were included. Another possible explanation is that fertility rates are similar across groups, but rates of entry into marriage are higher among college women so their pregnancies occur within marriage. Our descriptive work presented in Table 2, suggests that this is not the case. Fertility rates decrease with educational attainment and the percentage of women with a marital pregnancy is not higher with greater education. Women are delaying marriage in a roughly similar manner, but not parenthood.

We find evidence that the relationships formed differentially influence fertility outcomes. Specifically, while cohabitation doubles the risk of a non-marital pregnancy overall, this impact is nearly twice as large for women without a high school degree. While not reaching traditionally accepted levels of statistical significance we also tentatively suggest that the influence of sexual relationships on non-marital fertility is lower for college educated women compared to those with a high school diploma.

In addition to our main focus on the role of relationship formation, we also considered two potential alternative explanations. The first was that a high desire for parenthood leads some women to leave school earlier and become a mother. We added measures of fertility and marriage expectations in adolescence to our models predicting non-marital fertility to examine this possibility. The results did not suggest that these expectations mediate the influence of education.

Additionally, we considered whether contraceptive use patterns play a role in the educational variation we found. In our presentation of contraceptive use and fertility intentions measures from the National Survey of Family Growth for cohabiting women we found an inverse relationship between the non-use of contraception and educational attainment. The differences were substantial with 27% of women with less than a high school diploma reporting not using any method compared to only 6% of college educated women. This is a sizeable difference in exposure to the risk of a pregnancy outside of marriage given that these women are in sexually active relationships in prime childbearing years. Additional investigation showed that some of the women using not using contraception report that it is related to the desire for a pregnancy, but the larger proportion report that they do not desire a pregnancy. The women who report not using contraception despite not wanting a pregnancy may do so for many reasons. These could include barriers to contraceptive access or potentially fewer opportunity costs of an unintended pregnancy. The reports by some women of non-use of contraception due to a desire to become pregnant may be evidence of the factors highlighted in the background section including adaptive family formation strategies such as cohabitation operating as more of a marriage-like relationship.

This work contributes to the literature focused on the association between social background characteristics and stable family life. We set out to describe how educational variation in non-marital fertility is related to the pace, type, and effect of relationship formation. Our work suggests that the stronger effect of cohabitation on the non-marital fertility rates of less educated women is a promising avenue for future research. Additionally, the contraceptive use patterns of cohabiting women suggest a greater risk of

unintended pregnancy among women with the least amount of education also warranting further investigation. Cohabitation is a common feature of contemporary family life and better understanding this family form appears essential to understanding non-marital fertility.

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Table 1. Descriptive Statistics (calculated for the last record) (n=2,491 women)

	%
Nonmarital Pregnancy	24.5
Educational Attainment	
Less than High School	13
High School	41.2
Some College	26.3
College	19.4
Family Background	
Family Structure	
Two bio parent	50.5
Two parent other	21.1
Single mother	24.1
Other family structure	4.3
Maternal Education	
Less than high school	34.9
High school	48.8
Some college	8.2
College	8.1
Race/ethnicity	
White	72.9
Black	13.8
Hispanic	12.1
Other	1.1
Family Expectations	
Neither	44.3
Parenthood Only	22.1
Marriage Only	16.8
Both	16.8
Relationship Status	
Sexually Active	35.1
Cohabiting	24.0

Table 2. Formation Events in 3 Years after School-leaving, by Educational Attainment for Women with 3 Years of Exposure

Family Formation Events

	LTHS	HS	SCOLL	COLL
No Events	27.7	37.0	38.0	51.9
Pregnancy Only	8.9	5.3	4.1	0.3
Pregnancy and a Union	11.2	5.0	4.7	0.7
Cohabitation Only	17.0	26.9	29.1	25.1
Cohabitation and Pregnancy	24.1	12.3	7.7	1.2
Cohabitation and Marriage	4.9	7.7	8.6	11.8
Marriage Only	4.1	3.4	5.1	8.5
Marriage and Pregnancy	2.1	2.4	2.7	0.7
Any Cohabitation	46.0	46.9	45.4	38.1
Any Marriage	11.1	13.5	16.4	21.0
Any Pregnancy	46.3	25.0	19.2	2.9

Table 3. Odds Ratios from Discrete Time Event History Models Predicting a First Premarital Pregnancy in the Three Years After Leaving School (n=2,491 women)

	Zero Order	Model 1	Model 2	Model 3	Model 4
Educational Attainment					
Less than High School	2.27***	2.00***	1.99***	1.89***	1.54**
High School	.---	.---	.---	.---	.---
Some College	.68***	1.01	1.02	1.08	1.15
College	.08***	.20***	.21***	.24***	.30**
Family Background					
Family Structure					
Two bio parent	.---	.---	.---	.---	.---
Two parent other	1.80***	1.29*	1.27*	1.20	1.18
Single mother	1.71***	1.11	1.10	1.06	1.07
Other family structure	1.89**	1.19	1.18	1.06	1.07
Maternal Education					
Less than high school	1.35**	1.09	1.10	1.12	1.11
High school	.---	.---	.---	.---	.---
Some college	.62*	.80	.79	.82	.81
College	.48**	.65+	.64+	.66+	.65+
Race/ethnicity					
White	.---	.---	.---	.---	.---
Black	1.77***	1.37**	1.37**	1.59***	1.60***
Hispanic	1.50***	1.14	1.13	1.24	1.23
Other	1.69	1.38	1.38	1.59	1.59
Family Expectations					
Neither	.---		.---	.---	.---
Parenthood Only	1.69***		1.31*	1.22+	.93
Marriage Only	.93		1.00	.96	.73*
Both	1.85***		1.48*	1.31*	.76*
Relationship Status					
Sexually Active in Last Year	1.31**			1.28*	1.23
Cohabiting	1.96***			2.25***	2.18***
Interactions					
lths*Cohab					1.80*
Scoll*Cohab					.68
Coll*Cohab					1.11
lths*sex					1.18
Scoll*sex					1.13
Coll*sex					.11(p=.11)

Table 4. Descriptive Statistics of Contraceptive Use and Fertility Intentions, by Educational Attainment
National Survey of Family Growth Data for cohabiting women less than 30 and not enrolled in school (n=562)

Contraceptive Use				
	LTHS	HS	SCOLL	COLL
No method	27.3	16.9	9	5.7
A less effective method	30.4	26.5	22.5	26.2
A more effective method	42.3	56.6	68.5	68
Fertility Intentions				
	LTHS	HS	SCOLL	COLL
Using Contraception	72.7	83.1	91	94.3
Not using, not intending	19.4	6.9	2.4	4.3
Not using, intending	7.9	10	6.6	1.4