Perceived Costs and Benefits of Early Childbearing: New Dimensions, Racial Disparities, and Predictive Power

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Abstract:
Rates of early childbearing in the U.S. are persistently high, especially among race-ethnic minorities and women from disadvantaged backgrounds. Previous research has pointed to perceived benefits of childbearing as an explanation for teen fertility. We extend this literature by (1) examining multiple dimensions of costs and benefits and (2) focusing on childbearing in early adulthood. We use longitudinal data from young women (age 18-22) in the Relationship Dynamics and Social Life study to measure costs and benefits of childbearing including perceived personal positive consequences of childbearing, general views of early fertility, social stigma, and competing goals. African American and white women differ in their assessment of the costs and benefits of childbearing, and several dimensions are associated with subsequent pregnancy in bivariate analyses. However, only the positive personal consequences of childbearing predict pregnancy in multivariate models. This measure does not mediate the associations of other sociodemographic characteristics with early childbearing.

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Births to women in their teens and early twenties are associated with worse outcomes for mothers and children relative to later births, although the causal nature of this relationship is debated (Kane et al. 2013; McLanahan 2004). Births at younger ages are more likely to take place outside of marriage and less likely to be intended, characteristics also linked to negative outcomes (Logan et al. 2007; McLanahan and Percheski 2008). In addition, early births are more common among women from disadvantaged backgrounds and race-ethnic minorities, potentially compounding any impact of birth timing and exacerbating inequality among today's children (Smock and Greenland 2010). Understanding the causes of early childbearing is important both for reducing early birth rates and for appropriately identifying the consequences of these births.

More than three quarters of births to teenagers are unintended, as are half of births to women in their early twenties (Mosher, Jones, and Abma 2012). However, although women in this age group rarely plan births, they often express positive feelings about childbearing and perceive benefits to early fertility (Barber, Yarger, and Gatny forthcoming; Browning and Burrington 2006; Hartnett 2013; Kendall et al. 2005). These positive feelings are more common among race-ethnic minorities than among non-Hispanic white women, perhaps in part because women from disadvantaged backgrounds are less optimistic about their future economic prospects and so expect fewer negative consequences from early childbearing (Edin and Kefalas 2005). A longstanding body of research proposes that positive feelings about early childbearing and lower perceived costs are a primary reason for socioeconomic and racial disparities in early childbearing in the U.S.

This paper extends this literature by considering multiple dimensions of the perceived costs and benefits of pregnancy among early adult women (age 18-22). We examine specific attitudes about the personal consequences of pregnancy; general perceptions about the benefits of

early childbearing; social norms about sex, contraception, and childbearing; and the potential opportunity costs of early childbearing and analyze the relationship between these attitudes and subsequent pregnancy. Because previous research has suggested that young African-American women may perceive fewer costs and/or more benefits of early childbearing than white women, we investigate race differences in these attitudes related to childbearing. We also examine the predictive power of these attitudes in terms of pregnancy. Results show that perceived cost and benefits of childbearing are associated with subsequent pregnancy. Although the costs and benefits of pregnancy vary by race, this variation does not explain later fertility outcomes, and pregnancy attitudes do not mediate sociodemographic differences in early pregnancy.

Perceived costs and benefits of early childbearing

As noted above, births to women in their late teens and early twenties are predominantly unintended. But feelings about childbearing are multifaceted and multidimensional, and the intention not to become pregnant can coexist with ambivalent or positive feelings about childbearing. Trussell and colleagues (1999), for instance, found that only 59% of women with an unintended birth resulting from contraceptive failure actually felt unhappy or very unhappy about having a child; a quarter of these women reported being happy they were pregnant. In a recent survey of unmarried young adults, more than a quarter of those who thought it would be very important to avoid pregnancy said that they would be at least a little pleased about a pregnancy (Hayford and Guzzo 2013). A substantial body of literature has argued that these positive or ambivalent feelings contribute to high rates of early childbearing in the United States, and multiple studies demonstrate that they are associated with lower rates of contraceptive use and higher rates of pregnancy (e.g., Miller, Barber, and Gatny 2013; Moreau et al. 2013; Yoo, Guzzo, and Hayford 2014).

We draw on multiple theoretical frameworks to understand how mixed and positive feelings about childbearing are associated with pregnancy. We borrow the terminology of "costs" (particularly opportunity costs) and "benefits" from microeconomic approaches to fertility. But we do not mean to imply a narrowly economic or rational choice perspective. Costs and benefits, in our conceptualization, are inherently grounded in social contexts and relationships, including but not limited to relationships with families and partners, social roles and identities, and social norms regarding childbearing and the preferred sequencing of motherhood and other roles. Our understanding of "costs" and "benefits" is thus consistent with social-psychological approaches that identify individual attitudes and subjective norms as key predictors of intentions and eventual outcomes. Specific attitudes about the personal consequences of childbearing may underlie individuals' more general attitudes or intentions for childbearing. For example, possible consequences of pregnancy for young women might include having to drop out of school, or being unable to afford to care for the child. The expectancy-value framework posits that a woman would consider each of these potential costs and benefits of childbearing, along with their probability of occurrence, in determining her overall attitude toward having a baby (Ajzen 1988). Our approach also incorporates norms-based understanding of social behavior. Young women are well aware of the broader social norms encouraging delayed childbearing and the sanctions associated with violating these norms (James-Hawkins and Sennott 2015; Jensen and Bute, 2010). Variation in the strength of norms or severity of sanctions may predict pregnancy behavior.

Previous research has identified a wide range of attitudes toward childbearing that predict contraceptive use and pregnancy, though the bulk of this work has focused on teens. Predictors tested in previous studies range from single-item summary measures (e.g., "Getting pregnant at

this time is one of the worst things that could happen to me"; "I can handle the responsibilities of parenting"; "If you got pregnant, it would be embarrassing for you") to comprehensive multidimensional scales (Hartnett 2013; Jaccard, Dodge, and Dittus 2003a; Molborn 2010; Rocca, Harper, and Raine-Bennett 2013; Stevens-Simon et al. 2005). Some of these studies are limited to urban or clinic-based samples or are dominated by a single race-ethnic group. Still, taken together, this body of research consistently shows that although most teens do not want to become pregnant, teenagers also perceive positive consequences of having a child. Qualitative research, again often focused on urban or disadvantaged groups, reinforces these findings. Commonly reported positive outcomes include a sense of meaning and purpose, support from parents and romantic partners, and a loving relationship with the child (Edin and Kefalas 2005; Kendall et al. 2005).

In addition to their own feelings about childbearing, teens and young adult women are also influenced by social norms about early fertility and actual or perceived attitudes of people in their social networks. Social norms about early childbearing vary across communities (Browning and Burrington 2006; Harding 2007; Molborn and Sennott 2014). Although in most settings the overall climate discourages teen childbearing, the strength of this negative assessment and the presence of countervailing positive assessments vary, with less negative or more positive normative climates more often found in disadvantaged neighborhoods. The attitudes of parents and peers are a particularly influential aspect of the normative context surrounding early childbearing. For instance, perceptions that one's mother would disapprove of sex and pregnancy have been linked to sexual behaviors, contraceptive use, and pregnancy among adolescents (Jaccard, Dodge, and Dittus 2003b; Khurana and Cooksey 2012). Other work has highlighted the role of peer norms as influential (Mollborn, Domingue, and Boardman 2014); for instance,

perceiving that one's peers are sexually active is positively associated with sexual behavior (Beadnell et al. 2007). From a costs and benefits perspective, we can conceptualize social norms as costs, in that a pregnancy when one's social network disapproves translates into greater social sanctions and costs, whereas a pregnancy among someone whose social network holds more favorable attitudes would encounter fewer social sanctions and thus lower costs.

Finally, fertility behavior is shaped by women's goals in other domains and the degree to which these goals are understood to conflict with childbearing. Many women worry that an early birth will derail future plans and goals (James-Hawkins and Sennott 2015). These foregone activities constitute opportunity costs of childbearing; a stronger focus on future goals implies greater opportunity costs, which are hypothesized to reduce early fertility. To date, most work has focused on the educational and employment aspects of opportunity costs, with mixed results. Musick and colleagues (2009), for instance, found little evidence that economic factors such as actual or predicted wages were associated with completed fertility. Even when evidence supporting the opportunity costs framework is found, there are often qualifications; Driscoll and colleagues (2005) found that expectations for college were protective against a teen birth for white and Hispanic females from poorer communities but not for blacks. One potential explanation for the equivocal findings regarding opportunity costs is the extensive focus on education, employment, and income. Other work with a broader set of competing goals and life objectives, though limited, nonetheless supports the notion that perceived costs influence the context of births. Barber (2001), for instance, found that positive attitudes towards career and luxury goods reduce rates of nonmarital childbearing.

Future life goals may be especially important determinants of childbearing in early adulthood, a life course stage when women can choose between a range of potential life paths.

During the transition into adulthood, the normative proscriptions for childbearing change as teens finish schooling and become legal adults. Intimate relationships during emerging adulthood are longer, more committed, and usually involve sexual intercourse (Giordano, Manning, and Longmore 2005; Michael, Gagnon, Laumann, and Kolata 1995). Committed relationships, especially when combined with the ability to engage in full-time employment, may weaken the norms against childbearing; similarly, finishing high school may reduce the opportunity costs of a birth. Thus, establishing the costs and benefits of pregnancy for older teens and young adults during the transition to adulthood remains an important task.

There are multiple reasons to expect that African American and white women would consider the costs and benefits of pregnancy differently. Due to longstanding patterns of racial segregation and racial discrimination in the United States, African American women are more likely to grow up in poor households and have fewer opportunities for education and employment than white women (Conley 2009; Orr 2003; Isaacs 2007; Proctor and Dalaker 2002). African Americans and whites women also grow up in different neighborhoods, on average, with African Americans more likely to live in disadvantaged neighborhoods (Sharkey 2009). As a result of these different family and neighborhood contexts, African American women may perceive lower opportunity costs of pregnancy or lower social stigma related to sex and pregnancy. At the same time, because they have less economic and social security, on average, than white women, African American women may place greater value on the intrinsic rewards of motherhood (Burton and Tucker 2009; Edin and Kefalas 2005). Overall, we expect African American women to report more benefits and fewer costs of pregnancy than white women.

It is worth noting that much of the prior research has focused on teens in part because race differences in sexual behavior are largest in the younger teen years, with differences diminishing with age. For instance, at age 17, 55% of African American teens have had sexual intercourse compared to 41% of white teens (Chandra et al. 2005). By age 20, the vast majority of young adults have had sex, and the percentage point difference between African Americans and whites is nearly halved (86% and 78%, respectively). It may be the case that the perceived costs and benefits of early fertility come into play during the younger teen years, before young women have given more realistic and meaningful consideration to adult roles (such as career choice, relationship formation, and the like). From a life course perspective, earlier sex, contraceptive, and childbearing behaviors in the early teens – prior to the ages typically associated with the transition to adulthood – may set the stage for subsequent fertility behaviors. As such, we also include indicators of sexual and reproductive behavior prior to the young adult years.

Building on the previous research outlined above, we use a comprehensive set of measures to identify costs and benefits of childbearing in this paper. Our measures include an overall assessment of the consequences of childbearing, a scale specifically centered on the benefits of early childbearing, measures of perceived social stigma around sex and childbearing, and measures of potential opportunity costs of childbearing. These measures are described in more detail in the data and methods section below. We analyze the associations between these consequences and subsequent pregnancy and test for race-ethnic differences in both levels and predictive powers of these consequences.

Data and methods

Data

We use data from the Relationship Dynamics and Social Life study (RDSL), a longitudinal survey of young women living in a county in Michigan (Barber, Kusunoki, and Gatny 2011). The study began with a 60-minute in-person baseline interview, conducted between March 2008 and July 2009; all attitudinal measures are taken from this baseline interview. Respondents were then followed over a 30-month period during which they completed weekly surveys online or by phone. Reports of subsequent pregnancy are taken from these weekly surveys.

The dataset is representative of 18 and 19 year old women residing in a single county in Michigan. The choice of a single county allows for the comparison of poor and middle-class white and African American women living within a limited geographic area. Women temporarily absent for school or job training were included in the sample frame, which was drawn from the Michigan driver's license and personal identification card database. Because the sample is a simple random sample, no weights or adjustment for survey design are necessary. The baseline sample included 1,003 women. Of these women, 99% (N=992) agreed to enroll in the longitudinal component of the study, and 84% participated for at least 6 months. Because of the geographic setting, the sample is primarily made up of white and African American women. Approximately 10% of the sample reported Asian, American Indian/Alaska Native, or other (non-white, non-African American) race. Because we are interested in understanding differences in early childbearing between white and African American women, we limit our analysis to these two race-ethnic groups. Hispanic identity is measured separately from race, and there are few Hispanic women in the sample (less than 10%). We include Hispanic women in the race group that they identify with. Our analytic sample for bivariate analysis consists of 981 white and African American women with no missing data on the perceived costs and benefits measures.

For multivariate analysis, we drop 18 women who did not complete any weekly surveys or who had missing values on control variables for an analytic sample of 963 women.

Measures: perceived costs and benefits of pregnancy

The RDSL baseline interview includes an extensive set of questions designed to measure multiple aspects of attitudes toward sex, birth control, pregnancy, and childbearing as well as individual goals for education, work, personal consumption, and family formation. In this paper, we focus on six dimensions of perceived costs and benefits of early childbearing: (1) the respondent's perceived positive consequences of pregnancy for herself; (2) general perceived benefits of early childbearing; (3) perceived approval by friends of sex, contraception, and childbearing; (4) perceived approval by parents of sex, contraception, and childbearing; (5) the respondent's goals for personal consumption; and (6) desired educational attainment. These dimensions capture the personal consequences of pregnancy in the woman's own life, normative beliefs regarding early childbearing, the "social costs" of pregnancy (stigma, parental disapproval), and the potential opportunity costs related to foregone goals in competing life domains. For the first five of these constructs, we calculated a summary measure by averaging values across multiple items. The values of Cronbach's alpha for these scales are acceptable (between .57 and .79; see Table 1). The sixth measure is a dichotomous variable. Descriptive information on the six measures, including sample items, response options, and average values, is presented in Table 1. The full list of items is provided in Appendix Table A1.

<Table 1 about here>

The personal consequences of pregnancy scale covers multiple domains, including financial costs, increased responsibility, and conflicts with school, as well as summary measures of consequences (e.g., "Getting pregnant at this time in your life is one of the worst things that

could happen to you"). Exploratory factor analysis indicated that these items formed a single dimension. The original items have values ranging from 1 (strongly agree) to 4 (strongly disagree). A neutral response option was available only for respondents who insisted and was coded as 5 in the original items. On average, around 1% of the sample provided a neutral response on these items. We recoded the items to a scale of 1 to 5 with the neutral response coded 3. This measure is constructed such that larger values indicate stronger disagreement with negative consequences, i.e., a more positive evaluation of the consequences of pregnancy. Items are reverse coded as necessary.

The scale for general benefits of early childbearing also addresses outcomes in multiple domains, including both women's and children's physical health ("It is better to get pregnant young because young women's bodies recover faster", "Babies born to older mothers have more health problems") and the social implications of early childbearing ("It is hard for kids to have the oldest parents at their school"). While the consequences of pregnancy scale asks the respondent specifically about how a pregnancy would affect her life, the items on the early childbearing scale ask about early childbearing in general. Exploratory factor analysis identified the early childbearing items as measuring a different latent construct from the personal consequences scale. As with the consequences of pregnancy scale, we recoded the items to a scale of 1 to 5, with 5 representing the most positive assessment of early childbearing.

The friends' approval and parental approval scales are each made up of five items reflecting how the respondent believes her friends/parents would react to sex/pregnancy. These items are scored on a scale of 0 (not at all positively) to 5 (extremely positively), with 5 representing greater approval of the behaviors and thus lower social costs of pregnancy. The items on these scales include approval of general sexual and contraceptive behavior as well as

childbearing specifically. For both friends and parents, the item about approval of having a child is strongly correlated with other items, and Cronbach's alpha for the scale indicates a reasonable level of shared variance among the items. We tested multivariate models replacing the scales with the single items referring only to approval of having a child. Results from these models predicting pregnancy were virtually identical to models using the scale.

The consumption scale is constructed from five items that measure how important, from not at all (0) to extremely (5), it is to the respondent to own various consumer goods in the future. The goods included in the scale are a plasma television, stylish clothes, a house (vs. renting), a nice car, and a yearly vacation. This measure is scored such that higher scores mean that owning the item is more important. To the extent that owning these goods requires earning and saving money, and spending on children may make it more difficult to achieve these goals, the value placed on consumer goods reflects greater potential opportunity costs of childbearing.

We measure educational goals using a single question, "How far would you like to go in school?" Response options range from "graduate from high school" to "get more than four years of college." The distribution of this variable is highly skewed. More than 95% of the sample want at least some post-secondary education, and nearly half want more than 4 years of college. We therefore coded this variable as a dichotomy, wants more than 4 years of college vs. wants a bachelor's degree or less. Higher scores represent a greater desire for education and thus higher potential opportunity costs of childbearing. We also tested a measure of how much the respondent wanted to go to college in the next year. This variable was not significantly associated with subsequent pregnancy in any bivariate or multivariate analyses, so we did not include it in our final models.

The six constructs are only weakly correlated with each other; the strongest correlation is between approval by friends and approval by parents (r=.54; not shown). The consequences of pregnancy scale is moderately correlated with approval by friends and parents (r=.32 and r=.44, respectively; not shown). All other correlations are below .2. We do not analyze pregnancy intentions in this paper, but it is worth noting that the perceived costs of pregnancy are not strongly associated with pregnancy intentions either. The RDSL includes two measures of pregnancy desire, a positive measure of current desire to get pregnant and a negative measure of desire to avoid pregnancy, both measured on a scale of 0 to 5.[1] All correlations between these measures and the perceived costs measures are below .3 in magnitude (not shown).

Measures: subsequent pregnancy

We measure the occurrence of pregnancy after the baseline survey as our outcome. In each weekly interview, all respondents were asked if there was a chance they might be pregnant. Respondents who reported there was some chance were then asked if they had taken a pregnancy test that indicated they were pregnant. We counted only pregnancies that had been confirmed by a pregnancy test in our dependent variable. A total of 193 women in the analytic sample (20%) reported at least one pregnancy. For bivariate analyses of associations, we created a dichotomous variable for whether the respondent ever reported a pregnancy that started after the baseline interview (1) or not (0). For multivariate analyses, we use a time-varying measure of whether the respondent reported a confirmed pregnancy test in each weekly interview.

Measures: control variables

Measures of social disadvantage include whether the respondent is currently receiving public assistance as well as a childhood disadvantage index that adds four dichotomous

[1] Pregnancy intentions in this sample are strongly negative at baseline; 90% of women in the sample said that they had no desire to get pregnant, and 89% said they really wanted to avoid pregnancy.

indicators: mother's age at first birth less than twenty, mother's education less than high school, childhood family structure other than two parents, and receipt of public assistance during childhood. Past sexual and fertility experience are measured by whether the respondent had sex before age 16, whether she had 2 or more sexual partners before the study period, whether she ever had unprotected sex before the study period, and whether she was ever pregnant before the study period. We control for high school GPA (4-point scale) as well. Models also include age at baseline and a quadratic function of the number of months in the study to account for duration dependence. Finally, we incorporate a summary measure of the number of weekly surveys filled out by the respondent. This measure reflects the respondent's level of cooperation with the survey and may be correlated with accuracy or consistency of reporting.

Methods

We begin with bivariate analysis to describe race differences in the perceived costs and benefits of childbearing and to assess the association between these costs and benefits and subsequent pregnancy. We test for significance using t-tests. We then proceed to multivariate analysis to examine the role of other characteristics in explaining any associations. We use discrete time event history analysis to model the time-varying likelihood of experiencing a pregnancy. Because data are precise to the week, we use person-weeks as the unit of analysis.[2] For this short duration of observation, the likelihood of experiencing a pregnancy is essentially equivalent to the pregnancy rate, and we refer in results to associations with the pregnancy rate. Some women experience multiple pregnancies during the period of observation; to account for

[2] Questions in the weekly interviews referred to the period since the prior interview, unless the interview was 14+ days late, in which case it referred only to the prior week. This strategy results in a small amount of missing weeks in the dataset. The median number of days between interviews was 8, and the modal number of days between interviews was 7. 89% of weekly interviews were completed within 14 days of the prior interview.

the correlation between multiple spells of exposure to risk experienced by the same woman, we include a person-specific random intercept in the models (Teachman 2011).

Results

Descriptive results

Table 2 shows the average score for each dimension of costs and benefits for the analytic sample as a whole and by race. Overall, women in the sample report more negative than positive attitudes toward pregnancy. The two direct measures of pregnancy attitudes are slightly but not strongly negative. The average value on the personal consequences of pregnancy scale is 2.78, and the average value for the general attitudes toward early childbearing scale is 2.49 (recall that 3 is the neutral response option, neither agree nor disagree, and higher scores are more positive). Respondents report that neither friends nor parents would react positively to sex and pregnancy, although their predictions of parents' reactions are more negative. The average importance placed on consumer goods is around the midpoint of the scale, and desired educational attainment is very high. However, consistent with previous research, a substantial minority of women report positive attitudes toward childbearing. For example, about 30% of the sample report overall positive personal consequences of pregnancy (scores above 3) and about 30% report approval from friends for sex and pregnancy (scores above 3) (not shown). The exception to this pattern is for educational expectations, which are uniformly high in this sample, suggesting high opportunity costs of childbearing if having children conflicts with schooling.

Average values differ significantly by race for four of the six measures, although differences are relatively small (less than one half of a scale point, with the exception of the personal consumption scale, which shows a difference of 0.67 points on a 6 point scale). African American women have a higher average value for the personal positive consequences of

pregnancy scale and higher values on the friends' approval and parental approval measures, indicating greater social approval of sex and pregnancy. These measures suggest lower social costs of pregnancy for African American women, as predicted. However, race differences in the general benefits of early childbearing scale are small and not statistically significant. In sum, it appears that young African American women do not generally perceive greater benefits overall for early childbearing relative to white women, but they do seem to report that the personal consequences to themselves if they were to become pregnant would be more positive.

<Table 2 about here>

However, measures of personal consumption goals and educational goals suggest greater opportunity costs of childbearing for African American women than for white women. African American women assign more importance to consumer goods and report higher desired educational attainment compared to white women, although differences in desired education are not statistically significant. If these goals conflict with childbearing, these patterns should be associated with stronger motivation to avoid pregnancy.

In Table 3, we show the association between attitudes measured at baseline and subsequent pregnancy. In this sample, as in the United States as a whole in this age group, African American women are more likely to get pregnant than white women (25% vs. 17%; not shown). Four of the six dimensions of perceived costs are significantly associated with pregnancy. As expected, women who subsequently experience a pregnancy have higher scores on the scales for personal positive consequences of pregnancy, friends' approval, and parental approval. That is, women who get pregnant during the period of study reported less negative/more positive consequences of pregnancy and thought that their friends and parents

would be more likely to approve of sex, pregnancy, and childbearing. The more general early childbearing benefits scale is not significantly associated with pregnancy.

<Table 3 about here>

Looking at the measures of opportunity costs, educational aspirations are not significantly associated with subsequent pregnancy. (It is worth emphasizing that educational desires are uniformly high in this sample. Other measures of educational goals and expectations are similarly skewed.) Women who became pregnant had higher values for the consumption scale, indicating that they placed more value on consumer goods. That is, consumption goals do not seem to discourage pregnancy. It is possible that value placed on consumer goods is indicative of a pleasure-seeking orientation, which might also lead to higher sexual frequency. Alternatively, personal consumption may not be perceived as conflicting with childbearing. In fact, having a child may even be positively associated with consumption goals if women believe that having a baby will lead to greater financial support from their own family or the baby's father. Of course, it is also possible that other characteristics explain both consumption goals and subsequent pregnancy. We next estimate multivariate models to examine this possibility.

Multivariate results

Table 4 shows coefficients from discrete time event history models including a person-specific random intercept. We present three nested models. The first includes only the attitude measures, age, and duration to establish the baseline relationship between our costs and benefits measures and pregnancy; the second adds race-ethnicity and measures of current and childhood socioeconomic status; and the third adds measures of past sexual and contraceptive behavior.

Model 1 is largely consistent with the bivariate results in Table 3. When controlling for all attitude measures simultaneously, parents' approval of sex and pregnancy is not significantly

associated with the risk of becoming pregnant. Educational aspirations are also not predictive of pregnancy net of other perceived costs and benefits of pregnancy. However, the personal positive consequences of pregnancy, friends' approval of sex and pregnancy, and the value placed on consumer goods are all significantly associated with pregnancy in the same direction as shown in bivariate associations.

In Model 2, controlling for race and socioeconomic status, the consequences of pregnancy scale and friends' approval of sex and pregnancy remain significant predictors of pregnancy. However, consumption goals are no longer significantly associated with fertility outcomes. This attenuation suggests that the value placed on consumer goods is partly determined by race and economic disadvantage in childhood and the apparent relationship between consumption goals and pregnancy is largely driven by this association. After including the full set of control variables to account for prior sex, contraception, and fertility behaviors (Model 3), only the personal consequences of pregnancy scale is significantly associated with the risk of becoming pregnant. The measures of sexual behavior before the baseline interview cannot, strictly speaking, be considered a mediator of the relationship between friends' approval of sex and contraception and subsequent pregnancy, since these behaviors are all measured prior to both the predictor and the outcome variables. To the extent that sexual behavior before the baseline interview is predictive of later sexual behavior, these controls may indicate the pathway through which attitudes influence later pregnancy. It is also possible that sexual behavior and (perceived) friends' approval of sex and contraception are jointly determined by other factors such as neighborhood context, or that respondents choose friends who will approve of their sexual behavior.

Somewhat surprisingly, there are no racial differences in pregnancy rates in the full model; the bivariate differences between white and African American women (not shown) are accounted for by controlling for family background and sexual and contraceptive behavior before the baseline interview. In terms of other control variables, childhood disadvantage is positively associated with subsequent pregnancy, consistent with other research showing higher rates of early childbearing among women from disadvantaged backgrounds. Women with a higher high school GPA at baseline are less likely to become pregnant over the course of the study. GPA could be considered a measure of the opportunity costs of pregnancy, if women with better grades anticipate better educational and employment outcomes. Grades may also be a reflection of conscientiousness or other personality traits associated with contraceptive behavior, or may indicate better access to information about sex and contraception. Having multiple sexual partners and reporting an early sexual debut are positively associated with subsequent pregnancy.

In supplementary models (not shown), we tested for race differences in the association of predictors with subsequent pregnancy. The effect of the personal consequences of pregnancy scale was the same for white and African American women. The measure of friends' approval of sex and contraception was more strongly associated with pregnancy for white women, while previous sexual behavior was more strongly associated with pregnancy for African American women; given the correlation between these measures, we are reluctant to make firm conclusions based on these differences. There was some evidence that high school GPA was more predictive for African American women than for white women.

Discussion and conclusions

Despite declines in teen pregnancy, early childbearing remains an important public health issue due to its negative association with maternal and child well-being. Early childbearing is also

important from a life course standpoint. Young adulthood is a key transition period with long-term implications for future statuses and transitions, and the entrance into parenthood is a pivotal – and irreversible – life course transition (Knoester and Eggebeen 2006; Morgan and Rindfuss 1999). Further, socioeconomic and racial disparities in the timing of fertility both reflect and exacerbate disparities for adults and their children.

In this work, we sought to examine how the perceived costs and benefits of a pregnancy were related to pregnancy risk among a sample of young women ages 18-22. Although there is a large body of research looking at attitudes and norms regarding pregnancy, much of this work focuses on young teens, uses qualitative data from homogenous samples, or is largely limited to race-ethnic minorities. As such, little is known about the different types of costs and benefits of pregnancy across groups at a life course stage at which childbearing becomes increasingly acceptable.

In this sample of early adult women, women's evaluation of the personal consequences of getting pregnant and having a child are strongly predictive of subsequent pregnancy, even after controlling for family background, educational performance and aspirations, and prior sexual behavior. The large majority – 90% – of women in the sample reported that they had no desire to get pregnant. But women who evaluated the consequences of having a child more positively were more likely to get pregnant over the three-year period covered by the study. Thus, we find that, consistent with studies of younger teens, the perceived personal benefits of childbearing are associated with early childbearing among young adults.

Contrary to our expectations, other measures of the costs and benefits of childbearing were not associated with pregnancy net of other characteristics. The opportunity costs of childbearing, as measured by the value women place on consumer goods and their desired future

schooling, were not associated with later pregnancy when controlling for socioeconomic status and previous sexual behavior. And even in bivariate models, women's assessment of the more general benefits of early childbearing did not predict fertility behavior. These findings suggest that high rates of early fertility in the United States are not primarily explained by practical calculations about the consequences of having children while young.[3]

Our measure of the consequences of pregnancy did not mediate other associations. In particular, differences in pregnancy rates by race and childhood disadvantage were not attenuated when controlling for pregnancy attitudes (not shown). That is, women's personal evaluation of the consequences of pregnancy provides independent predictive power for explaining subsequent pregnancy: attitudes are not simply a pathway connecting social background with later behavior.

Bivariate statistics (Table 2) show that white women perceive less positive personal consequences of pregnancy than African American women and less approval of sex and contraception from friends and parents. There are no significant race differences in the costs of early childbearing or educational aspirations, and the effects of the costs and benefits of childbearing do not differ by race. In this sample, however, controlling for family background and past sexual behavior, there are no statistically significant race differences in childbearing. Studies focused on age groups or social settings where there are larger race differences in outcomes might also find a larger role for attitudes toward pregnancy and childbearing in explaining these differences; the results in Model 3, for instance, suggest that perhaps much of the selection into childbearing among race-ethnic minorities occurs primarily at the very young teen ages.

[3] Of course, this finding does not address the question of whether early childbearing actually is beneficial or not (cf. Geronimus 2003); rather, we show that women's (reported) perception of potential benefits is not enough to drive behavior.

As with all quantitative analyses of attitudes, there are limitations to our measurement strategy. It is possible that the scales we use in this analysis function differently for African American and white women. We conducted race-specific exploratory factor analysis (not shown) which suggested largely comparable measurement structures across race groups. However, we did not formally test for measurement invariance. It is also likely that attitudes toward childbearing change over time. During the 30-month period covered by the study, women finish school, change jobs, and begin and end relationships. Their evaluation of the consequences of childbearing may change along with these life course changes, and pregnancy may be better predicted using attitudes measured closer to the period of risk. Given the existence of large race differences in the context of childbearing (i.e., union status and intendedness), it is possible that the attitudinal measures may somehow affect the circumstances of childbearing rather than the risk overall.

Despite these limitations, we identified attitudes that are strong predictors of pregnancy in early adulthood. General norms about the best time to have a child appear to be less salient than women's specific evaluations of the consequences of childbearing and how a child would fit in to their life. These evaluations are related to women's sociodemographic characteristics, but are not purely a pathway connecting these background factors with later outcomes. Instead, pregnancy attitudes appear to reflect a more idiosyncratic understanding of the potential pleasures and problems associated with early childbearing.

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Table 1. Perceived costs and benefits of childbearing: measures

	Number of items	α	Mean	SD	Min	Max
Positive personal consequences	8	.76	2.78	0.69	1	4.75
Sample items: If you got pregnant now, you would be forced to grow up too fast; If you had a baby now, you would feel less lonely (reverse coded)						
Scale: 1=strongly agree with negative consequence to 5=strongly disagree; high scores imply less negative perceived consequences.						
General benefits of early childbearing	6	.57	2.49	0.59	1	5
Sample items: It is better to get pregnant young because young women's bodies recover faster; it is hard for kids to have the oldest parents at their school.						
Scale: 1=strongly agree to 5=strongly disagree; all items reverse coded so that high scores imply more positive attitude toward early childbearing.						
Friends' approval	5	.68	2.56	1.07	0	5
Items: How would your friends react if you: had sexual intercourse/used birth control/had sexual intercourse without using birth control/got pregnant/had a baby						
Scale: 0=not at all positively to 5=extremely positively; high scores imply more approval.						
Parents' approval	5	.79	1.83	1.20	0	5
Items: How would your parents react if you: had sexual intercourse/used birth control/had sexual intercourse without using birth control/got pregnant/had a baby						
Scale: 0=not at all positively to 5=extremely positively; high scores imply more approval.						
Desire for consumer goods	5	.7	2.62	1.19	0	5
Items: Please tell me how important it is for you to have these things now or in the future: plasma tv/stylish clothes/owning a house/a nice car/a nice two-week vacation						
Scale: 0=not at all important to 5= very important; high scores imply more importance on consumption.						
Desire for educational attainment	--	--	0.49	0.50	0	1
Item: How far would you like to go in school?						
Scale: 0=high school to 4 years of college; 1=more than 4 years of college.						

Data: Relationship Dynamics and Social Life Study. N=981.

Table 2. Perceived costs of childbearing

	Full sample		White		African American	
	Mean	SD	Mean	SD	Mean	SD
Positive personal consequences***	2.78	0.69	2.71	0.70	2.92	0.67
Benefits of early childbearing	2.49	0.59	2.51	0.59	2.45	0.59
Friends' approval***	2.55	1.07	2.44	1.03	2.73	1.11
Parents' approval***	1.83	1.20	1.74	1.13	2.03	1.31
Desire for consumer goods***	2.62	1.19	2.37	1.07	3.15	1.03
Desire for educational attainment	0.49	0.50	0.49	0.50	0.50	0.50
N	981		673		341	

Data: Relationship Dynamics and Social Life Study. ***: p<.001. Pooled t-tests of difference in means between white and African American women.

Table 3. Association of costs of childbearing with pregnancy

	No pregnancy		Pregnancy	
	Mean	SD	Mean	SD
Positive personal consequences ***	2.70	0.67	3.08	0.69
Benefits of early childbearing	2.49	0.58	2.48	0.65
Friends' approval ***	2.47	1.06	2.85	1.02
Parents' approval **	1.76	1.18	2.11	1.22
Desire for consumer goods**	2.60	1.12	2.83	1.09
Desire for educational attainment	0.50	0.50	0.46	0.50
N	788		193	

Data: Relationship Dynamics and Social Life Study. *: p<.05; **: p<.01; ***: p<.001. Pooled t-tests of difference in means between women who experienced a pregnancy during the study and women who did not.

Table 4. Logistic regression models predicting pregnancy

	Model 1			Model 2			Model 3		
	b	SE		b	SE		b	SE	
Costs and benefits of childbearing									
Positive personal consequences	1.17	0.20	***	0.75	0.15	***	0.55	0.15	***
General benefits of early childbearing	-0.24	0.19		-0.14	0.14		-0.11	0.14	
Friends' approval	0.25	0.12	*	0.16	0.09	*	0.08	0.09	
Parents' approval	0.02	0.12		-0.09	0.09		-0.10	0.09	
Desire for consumer goods	0.40	0.10	***	0.13	0.08		0.09	0.08	
Desire for educational attainment	-0.08	0.23		0.13	0.18		0.14	0.18	
Age and duration									
Age at baseline	-0.26	0.20		-0.17	0.15		-0.21	0.15	
Months in study	0.13	0.03	***	0.15	0.03	***	0.15	0.03	***
Months in study squared	0	0	*	0	0	**	0	0	**
Sociodemographic characteristics									
African American				-0.05	0.19		-0.05	0.19	
Childhood disadvantage				0.20	0.09	*	0.16	0.09	*
High school GPA				-0.34	0.14	**	-0.25	0.14	*
Receiving public assistance				0.56	0.2	**	0.34	0.21	
Number of weekly interviews				-0.02	0	***	-0.02	0	***
Previous sexual and contraceptive behavior									
Age at first sex 16 years or less							0.45	0.23	*
2 or more sexual partners prior to baseline							0.49	0.24	*
Ever had sex without birth control prior to baseline							0.29	0.22	
Ever pregnant prior to baseline							0.30	0.22	
Constant	-8.63	3.99	*	-4.68	3.02		-4.15	3.04	
Log likelihood	-1399.6			-1334.74			-1320.46		

Data: Relationship Dynamics and Social Life Study. *: p<.05; **: p<.01; ***: p<.001. Two-tailed tests. N=55414 weekly interviews. Models include a person-specific random intercept.

Appendix Table A1. Items included in cost of childbearing scales

Positive personal consequences

Please tell me if you strongly agree, agree, disagree, or strongly agree with the following statements. (If R insists: neither agree nor disagree)

Items in italics are reverse coded.

Getting pregnant at this time in your life is one of the worst things that could happen to you.

If you had a baby now, you would feel less lonely.

If you got pregnant now, you could handle the responsibilities of parenting.

If you got pregnant now, you would be forced to grow up too fast.

If you got pregnant now, you would have to quit school.

If you got pregnant now, you could not afford to raise the child.

If you got pregnant now, your family would help you raise the child.

It wouldn't be all that bad if you got pregnant at this time in your life.

General benefits of early childbearing

Please tell me if you strongly agree, agree, disagree, or strongly agree with the following statements. (If R insists: neither agree nor disagree)

All items are reverse coded.

It is better to have kids young because the grandparents can be more involved.

It is better to get pregnant young because young women's bodies recover faster.

It is easier for young women to lose weight after a pregnancy.

It is hard for kids to have the oldest parents at their school.

If a woman waits for the perfect time to have a baby, she will probably have trouble getting pregnant.

Babies born to older mothers have more health problems.

Friends' approval

I would like to ask you about how your friends would react if various things happened to you. Please give me a number between 0 and 5, where 0 is not at all positively and 5 is extremely positively. How would your friends react if you…

…had sexual intercourse?

…were using birth control?

…had sexual intercourse without using birth control?

…got pregnant?

…had a baby?

Parents' approval

Now I would like to ask you a few questions about how your parents would react if some things happened to you. Again, please give me a number between 0 and 5, with 0 meaning not at all positively and 5 meaning extremely positively. How would your parents react if they found out that you…

…had sexual intercourse?

…were using birth control?

…had sexual intercourse without using birth control?

…got pregnant?

…had a baby?

Desire for consumer goods

For each of the things I read, please tell me on a scale of 0 to 5 how important it is for you to have these things now or in the future, with 0 being not at all important and 5 being extremely important.

A plasma or big screen television
Clothes in the latest style
Owning a house instead of renting
A nice car
Having enough money to take a nice two-week vacation each year