Bowling Green State University
The Center for Family and Demographic Research
http://www.bgsu.edu/organizations/cfdr
Phone: (419) 372-7279   cfdr@bgsu.edu

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PERCEIVED COSTS AND BENEFITS OF EARLY CHILDBEARING:

NEW DIMENSIONS AND PREDICTIVE POWER

Sarah R. Hayford, Ohio State University (*hayford.10@osu.edu*)
Karen Benjamin Guzzo, Bowling Green State University
Yasamin Kusunoki, University of Michigan
Jennifer S. Barber, University of Michigan

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

Abstract (248 words)

Context

Rates of early childbearing in the U.S. are persistently high. Research on teen fertility suggests that perceptions of possible benefits to early childbearing contribute to high rates, and economic theories argue that high opportunity costs dissuade women from early births.

Methods

Analyses used longitudinal data from young women (age 18-22, interviewed for 30 months starting in March 2008) in the Relationship Dynamics and Social Life study (analytic sample, 701 women without a prior pregnancy). We measured the costs and benefits of childbearing using the personal consequences of childbearing (such as predicted financial costs and emotional reactions), social norms, and goals in potentially competing domains (opportunity costs). Bivariate t-tests and chi-square tests and multivariable discrete-time event history analyses were used to analyze the association of these costs and benefits with subsequent pregnancy.

Results

A substantial minority report perceived benefits of early childbearing – for example, 20% of women reported more positive than negative personal consequences. Several measures of costs and benefits are associated with subsequent pregnancy in bivariate analyses. However, only the personal consequences of childbearing (OR=2.0) and friends' approval of childbearing (OR=1.2) are positively and significantly associated with pregnancy once background characteristics are controlled. Goals in potentially competing domains are not associated with pregnancy.

Conclusion

The consequences of early childbearing, as perceived by young women, predict subsequent pregnancy. These perceptions are distinct from actual childbearing desires and other dimensions of costs and benefits and provide additional explanatory power. These results further illustrate the complex attitudinal underpinnings of reproductive behavior.

Births to women in their teens and early twenties are associated with worse outcomes for mothers and children relative to later births[1,2]. These negative associations are partly due to the context of early births – relative to older mothers, mothers in their teens and twenties are less likely to be married and more likely to have unintended births, characteristics also linked to negative outcomes[3,4]. In addition, early births are more common among women from disadvantaged backgrounds and among race-ethnic minorities[5]. As a result, children born to young mothers have access to fewer resources on average than children born to older mothers. Understanding the causes of early childbearing is important both for reducing early birth rates and for appropriately identifying the consequences of these births.

Most early births are unintended: more than three quarters of births to teenagers and half of births to women in their early twenties[6]. However, women in this age group often express positive feelings about childbearing and perceive benefits to early fertility[7,8,9,10], and these potential benefits of early childbearing may contribute to higher birth rates. In addition, differences in the perceived costs of early childbearing may explain sociodemographic variation in birth timing, as proposed by economic approaches measuring opportunity costs of teen fertility[11,12].

This paper integrates both attitudinal measures and indicators of potential opportunity costs to consider multiple dimensions of the perceived costs and benefits of pregnancy among early adult women (age 18-22). We examine attitudes about the consequences of pregnancy, social norms about early childbearing, and goals in domains that may conflict with childbearing. We then analyze the relationship between these dimensions of costs and benefits and subsequent pregnancy.

Costs and benefits of fertility

As noted above, births to women in their late teens and early twenties are predominantly unintended, which suggests that the processes driving early fertility are complex and cannot be understood solely by examining direct measures of fertility intentions. In fact, orientations toward childbearing are multifaceted and multidimensional, and the intention not to become pregnant can coexist with ambivalent or positive attitudes about childbearing or evaluations of the consequences of childbearing. Trussell and colleagues[13], 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[14]. These positive or ambivalent attitudes are associated with lower rates of contraceptive use and higher rates of pregnancy[15,16,17]. Thus, if positive orientations toward pregnancy are common among young adults, they may contribute to high rates of early childbearing in the United States. In this analysis, we look beyond direct measures of fertility intentions to understand a wider range of attitudes and perceptions that potentially influence early childbearing than has been used in past research.

We draw on multiple theoretical frameworks to understand how these attitudes and perceptions are associated with pregnancy. We borrow the terminology of "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 (both those related to parenting and those in other, potentially competing, domains), 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[19,20].

Specifically, we measure three broad dimensions of costs and benefits of childbearing in early adulthood: perceived consequences of having a child, perceived norms about early childbearing, and attitudes toward other activities not directly related to childbearing. We thus integrate two established but often disparate bodies of literature, one focused on fertility attitudes and one analyzing the opportunity costs of childbearing, that is, the activities or experiences that potentially conflict with having children and that women might have to give up if they had an early birth. In addition, analyses include a direct measure of prospective fertility intentions in order to assess whether other measures of costs and benefits are independently associated with pregnancy or act through traditional measures of intentions.

Previous quantitative research has identified a wide range of attitudes toward childbearing that predict contraceptive use and pregnancy. 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[9,17,21,22,23]. Some of these studies are limited to urban or clinic-based samples or are dominated by a single race-ethnic group, so it is unclear whether these measures are applicable more generally. Taken together, this body of research consistently shows that teen and early adult women do not want to become pregnant. However, it also shows that some of these women perceive benefits of having a child at a young age. 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[10,24]. Some young women also believe that waiting until one is older to have children could bring medical complications or even difficulty getting pregnant, while others report that young parents have more energy and recover better from childbirth[25,26].

Young women – even those with more favorable attitudes toward early parenthood – are well aware of social norms encouraging delayed childbearing and the sanctions associated with violating these norms[17,25]; not surprisingly, then, few women in their late teens and early twenties explicitly plan to have a child in the near future[28]. We conceptualize these sanctions as "costs" of early childbearing in our framework. Social norms about early childbearing vary across communities[8,29,30]. 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 (*ibid.*). The attitudes of parents and peers are a particularly important 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[31,32]. Other work has highlighted the importance of peer norms[33]; for example, perceiving that one's peers are sexually active is positively associated with sexual behavior[34].

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. This idea is articulated most clearly in microeconomic approaches to fertility, which identify wages foregone when women leave the labor force or reduce employment after having a child as "opportunity costs" of childbearing and explain the lower birth rates of more educated women as the result of higher

opportunity costs[35,36,37]. The central insight of these theories is that fertility attitudes are not the only predictor of fertility behavior; orientations toward other activities may also be salient if those activities are perceived to conflict with bearing or raising children. This framework has been extended to incorporate activities or domains beyond paid labor. For instance, Barber[38] found that attitudes toward professional achievement and the consumption of luxury goods are associated with delayed first births, even after controlling for attitudes toward childbearing, and argued that this association could be explained by perceived conflict between these goals and fertility. Similarly, many young women believe that having an early birth will make educational achievement more difficult[39,40], and expectations for college attendance are generally protective against early childbearing[41]. Importantly, the opportunity costs framework does not require that activities actually conflict with childbearing, only that women perceive them to conflict with childbearing. Conversely, if women do not expect childbearing to prevent achievement of another goal, that goal will not function as an opportunity cost. For instance, the relationship between educational expectations and early childbearing varies by race-ethnicity and community context[41], perhaps because of variation in the degree to which people think of childbearing as preventing further attainment. We hypothesize that a stronger focus on future goals implies greater opportunity costs of early childbearing, and that these greater costs will be associated with lower fertility.

We focus our analysis on early adult women (age 18-22). Fertility spikes sharply in the late teens and early twenties, and compared to younger teens, women age 18-19 show distinctive patterns of childbearing behavior[42]. Early adult women are legal adults and may have more economic resources than younger teens, but births in these age groups are not associated with markedly improved well-being for mothers or children relative to younger teen parents[43,44]. As

such, understanding the factors that influence fertility in young adulthood remains important, and future life goals may be especially crucial determinants of childbearing in early adulthood, a life course stage when women can choose between a range of potential life paths. During the transition to adulthood, the normative proscriptions around childbearing change as teens finish schooling and become legal adults. Intimate relationships during emerging adulthood are longer, more committed, and usually involve sexual intercourse[45,46]. 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 is an important task.

Data and methods

Data

We used data from the Relationship Dynamics and Social Life study (RDSL), a longitudinal survey of young women living in a single county in Michigan[47]. The study began with a 60-minute in-person baseline interview, conducted between March 2008 and July 2009; all attitudinal measures were 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 were taken from these weekly surveys. The data were collected by the University of Michigan's Survey Research Center, and the study was approved by the Institutional Review Board at the University of Michigan.

The RDSL was designed to provide a broad description of the factors contributing to young women's sexual, contraceptive, and fertility behavior, and the baseline interview included an extensive set of questions on multiple aspects of attitudes toward sex, birth control,

pregnancy, and childbearing as well as individual goals for education, work, personal consumption, and family formation. Although the study was not explicitly designed to test the association between perceived costs and benefits of childbearing and fertility, it included measures of multiple dimensions of costs and benefits as part of its overarching goal of understanding childbearing in early adulthood.

All women age 18 and 19 living in the Michigan county, including those temporarily absent for school or job training, were eligible for inclusion in the study. Respondents were randomly selected from the Michigan driver's license and personal identification database; see Barber, Kusunoki, and Gatny[47] for details on the completeness of this sample frame and on selection procedures. The baseline sample included 1,003 women. Of these women, 99% (N=992) agreed to enroll in the longitudinal component of the study. Women who missed one or more weekly interviews could rejoin the study at any point, and the weekly interviews could be conducted up to one week late. Of those who enrolled in the longitudinal component, 84% participated for at least 6 months, 75% for at least 18 months, and 61% completed their last weekly interview at least 30 months after the baseline interview. Women were provided small monetary incentives for the completion of each weekly interview ($1) along with bonuses for every five interviews completed and occasional small tokens of appreciation (e.g., pens or lip balm).

We excluded the 252 women who had experienced a pregnancy prior to the baseline interview because these women had experienced some of the actual, rather than perceived or hypothetical, costs and benefits of pregnancy. Even if the pregnancy was not carried to term (as was the case for about half of pregnancies prior to baseline), women who have been pregnant have more direct understanding of things like the physical symptoms of pregnancy, informing

friends and family about the pregnancy, and managing the financial consequences of pregnancy. Thus, measures such as perceived reaction of friends and parents or perceived ability to cope with a pregnancy mean different things for women who have been pregnant and those who have not. In preliminary analyses, we examined patterns of subsequent pregnancy among women with a pregnancy prior to baseline and found that both the costs and benefits of pregnancy and control variables were differently associated with subsequent pregnancy than among nulligravid women. A full examination of differences in the costs and benefits of pregnancy according to previous pregnancy experience would require different theories and measures; we therefore limited analysis to women with no pregnancy prior to the baseline interview. We also excluded 39 women with missing values on either independent or dependent variables, resulting in an analytic sample of 701 women. These women were interviewed an average of 63.7 times for a total of 44,681 weekly interviews.

Measures: pregnancy

The dependent variable in our analysis was a pregnancy. In each weekly interview, women were asked "Do you think there might be a chance that you are pregnant right now?" Respondents who answered yes to this question were then asked if they had taken a pregnancy test. We included only pregnancies that were confirmed by a pregnancy test in our dependent variable. For respondents who took part in every weekly interview, the start of the pregnancy is accurate to the week. For women who missed one or more weekly interviews and then returned to the sample, there is some measurement error in dating the start of the pregnancy. We also may have missed some pregnancies that started and ended between weekly interviews. However, the potential for measurement error is relatively small: 90% of weekly interviews were completed within 14 days of the previous interview, and only 5% of interviews took place more than 28

days after the previous interview. Thus, for the large majority of cases, we were able to precisely identify the start date of pregnancy.

Measures: perceived costs and benefits of pregnancy

We focused on three dimensions of costs and benefits of early childbearing: perceived consequences, social norms, and goals in potentially competing domains (opportunity costs). We used six measures to capture these dimensions: (1) the respondent's perceived consequences of pregnancy for herself; (2) general perceived benefits of early childbearing; (3) perceived approval by friends of childbearing; (4) perceived approval by parents of childbearing; (5) the respondent's goals for personal consumption; and (6) how much the respondent wanted to go to college in the next year. For three of these constructs (personal consequences of pregnancy, benefits of early childbearing, goals for consumption), 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 .76). The other three constructs were measured using single variables.

To select these predictors, we began by generating a list of dimensions of costs and benefits of childbearing based on existing literature as summarized in this article. This list included personal attitudes toward pregnancy; beliefs about the appropriateness of early childbearing; perceived social norms around early and nonmarital fertility; goals for education; and goals for personal consumption. We then searched the RDSL for potential measures of these dimensions. In most cases, the RDSL items were adapted from existing scales that have been used in previous research on fertility. Items on personal consequences of pregnancy and on perceived parental and friend reaction to sexual and reproductive behavior were adapted from the National Longitudinal Study of Adolescent to Adult Health[48]. Items on consumption goals were

adapted from the Intergenerational Panel Study of Parents and Children[49]. The items representing general attitudes toward early pregnancy were developed specifically for the RDSL based on existing research on the potential benefits of early childbearing[50,51]. The items measuring the personal consequences of pregnancy, attitudes toward early pregnancy, and consumption goals were developed for use in scales. We conducted exploratory factor analysis to verify that scale items loaded together on distinct factors as expected. The items that make up each scale are listed in the Appendix.

We constructed simple scales by averaging items. At this stage, we dropped some items that were not asked for all respondents in the sample (e.g., predicted response of partner to a pregnancy, which was asked only of partnered respondents). We further refined the scales by removing items with low shared variance. For instance, we dropped a question about the importance of having a savings account from the consumption scale. We also took into account substantive concerns and results from initial multivariable analyses in constructing our final model. For example, the RDSL includes multiple items measuring perceptions of parents' and friends' approval of various sexual, contraceptive, and reproductive behaviors. These scales have high internal consistency as measured by Cronbach's alpha (.79 and .68, respectively), but in multivariable models they did not provide additional explanatory power beyond single-item measures of attitudes toward having a child. Our preferred models therefore included only the single item.

The personal consequences of pregnancy scale (8 items, α=.76) 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"). 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 data. 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 was constructed such that larger values indicate stronger disagreement with negative consequences, i.e., a more positive evaluation of the consequences of pregnancy. Items were reverse coded as necessary. In exploratory analyses, we tested whether positive and negative items differentially predicted pregnancy. (Positive items included statements such as "If you had a baby now, you would feel less lonely"; negative items included statements like "If you got pregnant now, you would be forced to grow up too fast.") We found no evidence that positive and negative evaluations of the impact of pregnancy worked differently – in fact, scales constructed of only positive items and scales constructed of only negative items produced associations with subsequent pregnancy that were nearly identical in magnitude. We therefore included the combined scale in our final models.

The scale for general benefits of early childbearing (6 items, α=.57) 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 fertility timing ("It is hard for kids to have the oldest parents at their school"). While the consequences of pregnancy scale asked the respondent specifically about how a pregnancy would affect her life, the items on the early childbearing scale asked about having a child at a young age in general. 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.

Friends' and parents' approval of early childbearing were each measured with a single item. The questions for parents and friends are worded identically: "How would your [friends/parents] react if you had a baby?" Respondents answered with a number ranging from 0 (not at all positively) to 5 (extremely positively).

The desire for consumer goods scale (5 items, α=.70) was constructed from a set of identically worded questions that asked respondents "Please tell me how important it is for you to have these things now or in the future." Items included luxury goods such as a plasma tv and stylish clothes. Response categories ranged from 0 (not at all important) to 5 (very important).

We measured educational goals using a single question, "How much do you want to go to college during the next year?"[1] The RDSL includes multiple distinct but related questions about educational goals. These questions include the respondent's predicted chances of going to college and graduating from college, her desire to attend college in the next year, how far she wants to go in school, and how far she thinks she will actually go in school. We selected the measure of desire to attend college in the next year because the question ("How much do you want to go to college during the next year?") was most parallel in substance and wording to our other measure of potentially competing goals, the consumption scale ("How important is it for you to have these things?"). (This question wording was adapted from Add Health.) Response options for desired college attendance ranged from "not at all" to "extremely." The distribution of this variable was highly skewed. About 87% of the sample said they "extremely" wanted to go to college in the next year, and less than one percent said "not at all." We therefore coded this variable as a dichotomy, extremely vs. all other responses. Higher scores represent a greater desire for education and thus higher potential opportunity costs of childbearing.

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[1] This question was asked of all respondents; for respondents already enrolled in college, it refers to the desire to continue in school.

Measures: control variables

All models included a prospective measure of fertility intentions in order to assess whether costs and benefits provide additional explanatory power for understanding pregnancy risk. The RDSL asked respondents to report on a scale of 0 to 5 how much they wanted to get pregnant and how much they wanted to avoid pregnancy in the next month. The vast majority of respondents (90%) did not actively want a pregnancy and did want to avoid a pregnancy[15]. We included positive desire for a pregnancy rather than negative desire because it was more strongly associated with pregnancy in exploratory models. Because previous research has found that the perceived costs and benefits of childbearing differ by race-ethnicity[7,52], we included dummy variables for non-Hispanic white, non-Hispanic black, and Hispanic ethnicity. (7 non-Hispanic women in the sample reported another racial identity (neither white nor African-American); because of the small sample size, we combined this group with the non-Hispanic white women.) We also controlled for various measures of social disadvantage based on previous research arguing that disadvantaged women perceive more benefits and fewer costs of early childbearing[24]. Measures of social disadvantage included whether the respondent was currently receiving public assistance as well as a childhood disadvantage index created by adding four dichotomous indicators: mother's age at first birth less than twenty, mother's education less than high school, childhood family structure other than two biological parents, and receipt of public assistance during childhood. The items measuring conditions in childhood (family structure, receipt of public assistance) asked respondents about "when you were growing up"; thus, the definition of childhood was subjective and may vary across respondents. We controlled for high school GPA (4-point scale) as a proxy for personality characteristics such as conscientiousness that may be directly associated with pregnancy[53] and may confound the measured association

between educational expectations and pregnancy. Models included age at baseline to account for variation by age in pregnancy rates and a quadratic function of time elapsed since baseline (in months) to account for duration dependence. Finally, we incorporated a measure of how long the respondent stayed in the study. In each person-week, we included a time-invariant measure of the week that the last weekly survey was filled out. This measure reflects the respondent's level of cooperation with the survey and may be correlated with accuracy or consistency of reporting.

Analysis

We began with bivariate analysis to describe the perceived costs and benefits of childbearing and to assess the association between these costs and benefits and subsequent pregnancy. We tested for significance using t-tests and chi-square tests. We also calculated correlation coefficients among the continuous measures of costs and benefits as well as prospective desire to get pregnant. We then proceeded to multivariable analysis to examine the role of other characteristics in explaining any associations. No weights or adjustment for survey design were necessary because the RDSL is a simple random sample. We used discrete time event history analysis to model the time-varying likelihood of experiencing a pregnancy. Because data are precise to the week, we used 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 experienced multiple pregnancies during the period of observation; we modelled only the first pregnancy and censored weeks after the first pregnancy in the analysis. We estimated two models, the first including only the costs and benefits measures and the second

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[2] Questions in the weekly interviews referred to the period since the prior interview, unless the interview was 14+ days late, in which case they referred only to the prior week. This strategy results in a small amount of missing weeks in the dataset. As noted above, the large majority of weekly interviews were completed within 14 days of the prior interview.

adjusting for prospective fertility desires and sociodemographic controls. All analyses were conducted in Stata (version 12.1).

Results

Very few women in the sample wanted a child at baseline; on a scale from 0 to 5 measuring desire to get pregnant, the average score was 0.16. The average age of respondents at baseline was just over 19 years old. About one quarter of the women in the sample are non-Hispanic black, and about 8% are Hispanic; the remaining two thirds are predominantly non-Hispanic white, with a very small number of other race respondents (not shown). On a scale of childhood disadvantage ranging from 0 to 4, the average score was just over 1. The average high school GPA in the sample was about a B (3.09 on a 4 point scale), and about 12% of respondents were receiving public assistance at the baseline interview. The mean number of weekly interviews was 68.75, indicating that the average respondent participated for more than a year after the baseline interview.

Overall, women in the sample reported more costs than benefits of pregnancy (Table 2). The two direct measures of pregnancy attitudes showed values toward the lower end of the scale. The average value on the personal consequences of pregnancy scale was 2.59, and the average value for the general attitudes toward early childbearing scale was 2.49 (recall that for both of these scales, 3 is the neutral response option, neither agree nor disagree, and higher scores reflect more expected benefits of pregnancy and childbearing). Respondents reported that neither friends nor parents would react well to their having a child, although they predicted worse responses from parents than from friends (1.44 vs. 2.15; scale ranges from 0 to 5). The average importance placed on consumer goods was around the midpoint of the scale, and desired educational attainment was very high – about 89% of the analytic sample said they "extremely"

wanted to go to college next year. However, consistent with previous research, a substantial minority of women reported benefits associated with childbearing. For example, about 20% of the sample reported overall beneficial personal consequences of pregnancy (scores above 3; not shown). The exception to this pattern is for educational desires, which were uniformly high in this sample, suggesting high opportunity costs of childbearing if women perceive motherhood as conflicting with schooling.

<Table 2 about here>

The different dimensions of costs and benefits of childbearing are not strongly correlated with each other (correlations not shown). The personal consequences of pregnancy scale is moderately correlated with perceived friends' and parents' approval (r=.42 and r=.48, respectively). Friends' approval and parents' approval are also correlated with each other (r=.63). All other correlations between measures are below .2 in magnitude. The measures are also only weakly correlated with more traditional measures of pregnancy intentions. The personal consequences of pregnancy scale is weakly correlated with the desire to become pregnant (r=.28); all other correlations with costs and benefits are below .2.

Overall, 101 of the 701 respondents in the analytic sample, or 14%, reported a pregnancy over the study period (44,681 person-weeks), for a pregnancy rate of 0.12 pregnancies per person-year. Three of the six measures of perceived costs and benefits were significantly associated with pregnancy. As expected, women who subsequently experienced a pregnancy had higher baseline scores on the scales for personal consequences of pregnancy and friends' approval. That is, women who got pregnant during the period of study initially reported less negative/more positive consequences of pregnancy and thought that their friends would be more likely to approve of childbearing. The magnitude of the difference is about one third of a point

for personal consequences and about two thirds of a point for friends' approval, or about one-half and two-fifths of a standard deviation, respectively, generally considered a small to medium effect. The more general early childbearing benefits scale was not significantly associated with pregnancy. Looking at the measures of opportunity costs, education desires were not significantly associated with subsequent pregnancy. Women who became pregnant had *higher* values for the consumption scale, indicating that they placed more value on consumer goods; the magnitude of this effect is slightly smaller than for the attitude measures (just under one third of a standard deviation). That is, consumption goals do not seem to discourage pregnancy.

Results from discrete time event history models without controls (Table 3) are largely consistent with the descriptive statistics in Table 2. A one-point increase in the personal consequences of pregnancy scale is associated with a doubling of the weekly odds of experiencing a pregnancy (OR=2.0). Friends' approval of childbearing (OR=1.2) and desire for consumer goods (OR=1.4) are also significantly and positively associated with pregnancy. In the full model, coefficients for the costs and benefits measures are slightly attenuated relative to the model without controls. In particular, respondent's orientation toward consumption is no longer significantly associated with subsequent pregnancy (and is close to zero in magnitude) once sociodemographic characteristics are taken into account. However, personal consequences of pregnancy and friends' approval of childbearing are still predictive of pregnancy during the study (OR=2.0 and OR=1.2, respectively).

<Table 3 about here>

Looking at the control variables, there are no statistically significant race-ethnic differences in pregnancy rates in the full model; in models without family background characteristics (not shown), African American women experienced higher pregnancy rates than

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white women, consistent with other research on race-ethnic differences in fertility. Childhood disadvantage is positively associated with subsequent pregnancy, with a one-point increase in the childhood disadvantage scale predicting a 30% increase in the weekly odds of pregnancy (OR=1.3). This significant association in a model controlling for costs and benefits suggest that these costs and benefits do not fully account for socioeconomic differences in early pregnancy.

Discussion and conclusions

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 prospectively reported fertility desires, family background, and educational performance and aspirations. About 20% of women in the sample believed in some positive personal consequences of pregnancy, and these women were more likely to get pregnant over the 30 month period covered by the study. Thus, we find that the perceived personal benefits of childbearing are associated with early childbearing among young adults. Women who believed that their friends would be more supportive of childbearing were also more likely to get pregnant. Women's assessment of the 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 driven by general normative beliefs that it is better to have children while young or that young mothers will be healthier. Of course, this finding does not address the question of whether early childbearing actually is beneficial or not[51]; rather, we show that women's (reported) perception of general benefits is not enough to drive behavior. Instead, women's specific assessment of how having a child would affect their own personal circumstances is more important for understanding their fertility behaviors.

Contrary to our expectations, measures of young women's goals in domains that potentially conflict with childbearing did not predict pregnancy net of other characteristics. Women's educational desires were not associated with subsequent pregnancy even in bivariate models. And although earlier research found that the value women place on consumer goods predicts nonmarital fertility[38], in this sample of young adult women it was not associated with pregnancy when controlling for socioeconomic status. It is possible that young women do not see education or consumer goods as conflicting with childbearing. Some recent research suggests that having a child does not reduce educational expectations, and some mothers even report that having children has increased their desire for achievement[54,55]. Still, the preponderance of research finds that women *think* that having a child will make it harder for them to complete their education[25,27]. Given the very skewed distribution of educational aspirations in our study, it may be that our measure of educational expectations is insufficiently precise to detect associations. It is also possible that women's perceived opportunity costs of childbearing are incorporated in their assessment of the personal consequences of pregnancy. For example, items such as "Getting pregnant at this time in your life is one of the worst things that could happen to you" might capture consequences like facing economic strain or having to delay schooling. However, the consequences of pregnancy scale is only weakly correlated with opportunity cost measures, and even unadjusted models show no significant associations between opportunity costs and subsequent childbearing. For young adult women, the predicted socioemotional costs and benefits of childbearing are more salient than foregone educational and consumption experiences in predicting pregnancy. Given the uniformly high desire for education in this age group, there may not be sufficient variation in the opportunity costs of childbearing to explain variation in

pregnancy. Still, this finding is consistent with other work using more direct measures of opportunity costs (i.e., wages) that failed to find a strong empirical link[36].

As with all quantitative analyses of attitudes, there are limitations to our measurement strategy. Orientations toward pregnancy and childbearing are multifaceted and potentially contradictory. Our set of scales incorporated some of this multidimensionality, but no survey measure can fully capture this variation. Further, attitudes toward childbearing may 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. In addition, the generalizability of the findings may be limited by the geographic restriction of the sample to a single county in Michigan. However, levels of fertility and family behaviors such as cohabitation, teen fertility, nonmarital fertility, and first birth timing in Michigan fall close to the national median[56]. In addition, the sample is randomly selected and population based, and respondents reflect substantial socioeconomic variation[47]. The choice of a single county allows for the comparison of women living within a limited geographic area, implicitly controlling for factors (such as access to family planning and abortion services) that are geographically determined.

The vast majority of women in our sample did not report wanting to become pregnant, and the reported associations between costs and benefits and subsequent pregnancy are robust to the inclusion of controls for fertility intentions. The question, then, is why some women have unintended pregnancies – a question that has plagued research on unintended fertility since the first studies of this phenomenon[57]. The proximate determinants of pregnancy are sex and contraception; other research using these data show both of these behavioral pathways are

important mechanisms connecting attitudes and behavior[28]. We do not attempt to disentangle these pathways; instead, our research focuses on underlying orientations.

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, personal understanding of the potential pleasures and problems associated with early childbearing. One next step for research would be to understand *how* these factors affect fertility. If women who perceive benefits to pregnancy use contraception less consistently or less effectively, these attitudes could be used to target reproductive health services. Another research and policy direction would be to consider the meaning of unintended pregnancy among women who perceive benefits. For these women, the intention to prevent pregnancy may stem primarily from a lack of financial or practical resources[52]. Improving social support systems for young mothers is politically challenging, but may more directly address the root problems of early childbearing than increased contraceptive services.

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Table 1. Descriptive characteristics of the analytic sample

	Mean (SD)
Desire to get pregnant (range=0-5)	0.16 (0.69)
Age at baseline (years)	19.16 (0.57)
Race-ethnicity (proportion)	
Non-Hispanic White & other (non-white, non-African American) race	0.66
Non-Hispanic African American	0.26
Hispanic (any race)	0.08
Childhood disadvantage scale (range=0-4)	1.08 (1.07)
High school GPA (4-point scale)	3.09 (0.56)
Receiving public assistance (proportion)	0.12
Duration in study (weeks)	68.75 (42.57)

Data: Relationship Dynamics and Social Life Study. N=701 women with no pregnancy prior to the baseline interview and no missing data on predictor or outcome variables. All characteristics measured at baseline except for number of weekly interviews.

Table 2. Perceived costs and benefits of childbearing and their association with pregnancy during the study period

	Range	Analytic sample Mean (SD)	No subsequent pregnancy Mean (SD)	Subsequent pregnancy Mean (SD)
Personal consequences ***	1-5	2.59 (0.62)	2.55 (0.61)	2.85 (0.65)
Benefits of early childbearing	1-5	2.49 (0.60)	2.49 (0.59)	2.49 (0.63)
Friends' approval ***	0-5	2.15 (1.74)	2.06 (1.72)	2.74 (1.76)
Parents' approval	0-5	1.44 (1.72)	1.40 (1.70)	1.70 (1.83)
Desire for consumer goods**	0-5	2.52 (1.13)	2.48 (1.14)	2.79 (1.05)
Desire to enroll in college (proportion)	0-1	0.89	0.88	0.87
N		701	601	101

Data: Relationship Dynamics and Social Life Study. **: $p<.01$; ***: $p<.001$. Pooled t-tests of difference in means (for continuous variables) or chi-square tests (for desire to enroll in college) between women who experienced a first pregnancy during the study and women who did not. Analytic sample consists of women with no pregnancy prior to the baseline interview and no missing data on predictor or outcome variables.

Table 3. Discrete time event history models predicting pregnancy

	Costs and benefits	Costs and benefits and controls
	OR (95% CI)	OR (95% CI)
Costs and benefits of childbearing		
Positive personal consequences	2.0 (1.5-2.9)***	2.0 (1.4-2.9)***
General benefits of early childbearing	1.0 (0.7-1.4)	0.9 (0.6-1.2)
Friends' approval	1.2 (1.1-1.4)**	1.2 (1.0-1.3)*
Parents' approval	0.9 (0.8-1.0)	0.9 (0.8-1.0)
Desire for consumer goods	1.4 (1.2-1.7)***	1.1 (0.9-1.3)
Desire to enroll in college	0.7 (0.4-1.3)	0.8 (0.4-1.4)
Desire to get pregnant		1.0 (0.8-1.3)
Age and duration		
Age at baseline		0.8 (0.5-1.1)
Months since baseline		1.1 (1.0-1.2)*
Months since baseline squared		1.0 (1.0-1.0)
Sociodemographic characteristics		
Non-Hispanic African American		1.3 (0.8-2.0)
Hispanic (any race)		1.0 (0.5-2.1)
Childhood disadvantage		1.3 (1.0-1.6)*
High school GPA		0.7 (0.5-1.0)
Receiving public assistance		1.7 (1.0-2.8)
Number of weekly interviews		1.0 (1.0-1.0)***
Constant	0.0 (0.0-0.0)***	0.4 (0.0-387.7)
Log likelihood	-679	-629

Data: Relationship Dynamics and Social Life Study. *: p<.05; **: p<.01; ***: p<.001. Two-tailed tests. N=44681 weekly interviews for women with no pregnancy prior to the baseline interview and no missing data on predictor or outcome variables.

Appendix Table A1. Items included in cost of childbearing scales

Personal consequences

Please tell me if you strongly agree, agree, disagree, or strongly disagree 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.

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