Does Money Matter for Fertility, Intentions, Plans, and Importance?

Lessons from the Great Recession*

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Abstract

U.S. birth rates declined dramatically during the recent Great Recession. Did women of reproductive age change fertility behavior and attitudes in response to changes in their economic circumstances? The National Survey of Fertility Barriers provides data on a probability sample of U.S. women ages 25-45 in 2004-2006 with a subsample re-interviewed in 2008-2009, and is therefore suited to compare women whose economic circumstances decreased, increased or stayed stable on the odds of having a baby, fertility intentions, ideal family size, and importance of parenthood. We use rational choice and life course theories to guide the change score analysis of a representative sample of 1,301 U.S. women. For the most part, we did not find that women are changing fertility behavior or attitudes in response to changes in economic circumstances, with the exception of economic changes associated with increased opportunity costs of having children.

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Both the overall number of births and the birth rate in the U.S. have fallen in recent years, from 4,316,233 births and birth rate of 69.3 births per 1,000 women in 2007 to 3,961,000 births and a rate of 63.4 in 2011, respectively (Hamilton, Martin, & Ventura, 2011; National Center for Health Statistics, 2012). Recent reports in the popular press as well as in the fertility literature has linked falling fertility to the recent economic downturn. Numerous prior studies have identified an association, historically and contemporarily, between fluctuations in the economy and fluctuations in national birth rates (Sobotka, Skirbekk, & Shilipov, 2011). The negative effect of economic recessions or downturns on fertility often occurs through fertility postponement, especially of first births, which can be compensated for when the economy rebounds. When economic downturns are particularly severe and long-lasting, such as in the case of the Great Depression, period fertility rates may never recover. For example, childlessness rates historically have been greatest among women born in 1901-1910, those who were the most severely affected by the Great Depression (Morgan, 1991).

Yet economic downturns are clearly not the only sources of declining fertility rates; recent global changes in reduced ideal family size and increased fertility postponement have resulted in below-replacement fertility in many industrialized societies (Booth & Crouter, 2005; Morgan, 2003), referred to as the "Second Demographic Transition" (Kane, 2013; Lesthaeghe, 1995; Morgan & Taylor, 2006; van de Kaa, 1987). Social, cultural and demographic changes--including increasing divorce rates, greater acceptance of nonmarital births, enhanced employment and career options for women, higher percentages of employed mothers, increasing

acceptance of the voluntary childfree, and increased educational opportunities--have provided more options for women in addition to childbearing (DiPrete et al., 2003; Morgan & King, 2001; Rindfuss, Guzzo, & Morgan 2003; van de Kaa, 2001). The U.S. remained unique among industrialized societies with its replacement level birth rates (Morgan, 2003) until the beginning of the recent economic downtown (e.g., the "Great Recession") (Livingston & Cohn, 2012). Do changes in economic circumstances change women's fertility behavior or intentions? From population-level analyses, it is unclear whether declining birth rates are due to declines in desired number of children, fertility intentions, declines in the desired number of children, or the importance of parenthood in response to changes in economic circumstances. In this study, we use panel data from the National Survey of Fertility Barriers (NSFB) to explore the association between changes in individual economic circumstances and changes in fertility behaviors, intentions, family size preferences, and importance of parenthood. The NSFB includes interviews before and during the recent recession. The recession likely created more change in economic circumstances than occurs in time periods with greater stability. Because the baseline interviews took place before the great recession, we can use the timing and variation of experiences among women in the survey to examine how changes in economic conditions at the individual and household level are associated with changes in women's fertility behaviors, intentions, family size preferences, and attitudes.

Theoretical Background

Economic theories of fertility have long purported that individuals or couples weigh the costs and benefits of bearing and raising children, select fertility intentions in light of these costs, and engage in fertility behaviors accordingly (Becker, 1991; Kohler & Kohler, 2002; Morgan & King, 2001). Indeed, in 2009, the Guttmacher Institute reported 44% of women said they plan to

reduce or delay childbearing as the result of economic circumstances. Yet most human behaviors reflect a mix of rational calculation and less planful reactions. Social norms and values shaped by life course patterns also influence fertility intentions and behaviors (Edin & Kefalas, 2005; Hayford, 2009; Morgan & Taylor, 2006).

Economic costs and fertility

There are several pathways through which the recent economic recession is likely to have influenced fertility outcomes. First, many families experienced job loss and long-term unemployment, but there were important gender differences that have potential implications for fertility patterns. Early in the recession, men experienced high rates of unemployment and job losses, particularly in the cyclical industries of manufacturing and construction (Goodman & Mance, 2011). Yet sectors that traditionally employ women, such as education and health, continued to add jobs during the recession and recovery (Goodman & Mance, 2011), leading to an actual increase in women's labor force participation during the recession (Grown & Tas, 2011). Prior research suggests that whereas men's employment increases fertility, women's employment decreases the likelihood of birth (Budig, 2003; Schaller, 2012). Further, men who earn higher incomes tend to have higher fertility and lower childlessness (Weeden et al., 2006), but the inverse is the case when women are high earners (Seigel, 2012). Thus, it is necessary to assess changes in both women's and their partners' employment status to assess relevance for fertility preferences and behaviors.

Economic changes may affect fertility outcomes due to their impact on the direct costs of children, which include childcare costs, and increased food, clothing, and housing expenditures. Therefore, families that lost income or experienced greater economic hardship during the

recession may have reduced their fertility intentions and behaviors due to the expectation of greater strain from the costs of children.

Costs can be indirect as well; for example, education and career options can be limited by having children in a social environment that has few supports for help with raising children. A rational choice approach suggests that women's work status and education should be inversely related to fertility intentions, family size preferences, and fertility behaviors because women with more education have greater economic opportunities than less-educated women. Indeed, previous research has shown that women with more education place a lower priority on having children and are more likely to remain childless (Houseknecht, 1987; Rovi, 1994), and recent research indicates that fertility continues to be postponed to later ages, particularly by women with high levels of education and possibilities for career advancement (Mills et al., 2011). Further, there is a wage penalty of motherhood for employed women, particularly those with more education and earn higher incomes (Anderson, Binder, & Krause, 2002), which may reduce women's fertility intentions, preferences, and importance.

The effects of economic recessions do not always lead to declines in fertility or fertility intentions. Sobotka and colleagues (2011) argue that recessions have different consequences for different individuals. For example, fewer job opportunities can signal a good time to have children for women who want to stay at home and who have spouses/partners with employment.

Social and cultural influences on fertility

In the United States, most women want to be parents (Quesnel-Vallee & Morgan, 2004). There is also evidence that clear norms about ideal family size among specific groups influence personal attitudes about ideal family size (Morgan & Taylor, 2006). Fertility norms are shaped by social class (Edin & Kefalas, 2005), race/ethnicity and religiosity (Hayford & Morgan, 2008).

Among lower income women, for example, the social and emotional values of children often outweigh the financial costs (Edin & Kefalas, 2005). In addition, the meaning of raising children depends upon social class (Lareau, 2005), with mostly higher income families emphasizing intensive parenting and lower income families emphasizing natural growth. Indeed, Ramey and Ramey (2010) found that mothers with the greatest opportunity cost of time spend more, not less time with their children despite the availability of market substitutes. Thus higher income parents, who often spend more time with their children, higher hours spent working each week, and who experience difficulty balancing work and family demands (Jacobs & Gerson, 2001), are expected to have lower ideal family size preferences and fertility intentions.

Broader social changes and changes in individual economic circumstances are less likely to lead to changes in fertility behavior and attitudes if life course changes such as finishing education or getting married offset financial concerns (Kohler & Kohler, 2002). Individual and social histories co-occur over time, and although union formation and human capital development fluctuates with economic forces; biological capability should not be subject to short-term historical change. Therefore social changes and the meanings that they have for fertility should not depend upon biological fertility capacity. The meanings of social changes, however, likely depend upon age, being in a relationship, and degree of valuing parenthood.

Several studies demonstrate that social changes have more of an impact on the timing and occurrence of first births than higher order births (Dey & Wasoff, 2010). Hagewen and Morgan (2003) argue that values and norms have greater influence on fertility at lower parities and that situational factors such as relationship and employment status exert greater influence at higher parities.

Morgan and Taylor (2006, p. 384) describe the life course perspective "as the unquestioned, appropriate analytic frame for contextualizing fertility intentions and behavior." The basic premise of this framework is that the timing and sequence of events have implications for later events. In addition, lives are linked in ways that have implications for behaviors. For example, marriage should be a trigger for childbearing, but the association could depend upon women's age, prior relationships or pregnancies, and wider social forces. Age is likely to be inversely related to fertility intentions, preferences, and behaviors as well; studies have shown that there are normative attitudes about when childbearing should occur (Settersten & Hagestad, 1996). Later age could also mean fertility forgone or an impetus to conceive for women who have had no prior pregnancies. Because each additional child adds direct and indirect costs for the family, parity (number of children) is expected to have an inverse relationship with fertility intentions and behaviors. Likewise, without having another parent to shoulder some of the financial and childrearing responsibilities, single women are expected to have lower fertility intentions and behaviors. Finally, as prior research has identified greater importance of parenthood among those who are parents (McQuillan et al., 2008), we expect increases in parity between waves to be associated with greater importance of parenthood.

Statement of the problem

This study contributes in several ways to our understanding of the relationship between changes in economic conditions at the individual and household level and changes in women's fertility behaviors, family size preferences, intentions, and importance. First, whereas the majority of prior studies of economic downturns and fertility have examined considerations such as male or female unemployment rates at the aggregate level (e.g., Adsera, 2010), we examine

changes in individual or household economic conditions. In addition, we build on prior work (Sobotka et al., 2011) and separate women's or their partners' employment status.

We cannot fully explain the current downturn in fertility because we have longitudinal data only on women who were twenty-five or older during the initial interview. Therefore we are missing an important group of women – those initially under age twenty-five and still forming family size preferences and fertility intentions. We can, however, take advantage of both the national level and individual level changes between 2004-2006 and 2008-2009 to assess whether changes in individual and household economic circumstances contribute to changes in fertility behaviors, fertility intentions, family size preferences, and importance of parenthood. We use several outcomes because the short time period could influence intentions and behaviors more quickly than family size preferences and importance of parenthood, or vice versa. If births are less likely among women and couples who have declines in income or employment or increases in economic hardship, it could be that fertility intentions and ideal family size preferences persist but that births are simply delayed until the economy returns. Fertility declines during economic downturns are often associated with postponement rather than foregone fertility. Yet in the past 30 years the proportion of women remaining childless doubled (Dye, 2008). Therefore the declines associated with the great recession could simply be accelerating changes that were in progress already. Declining family size preferences or declining importance of parenthood could suggest that recent fertility declines are not merely indicative of postponement but may signal more permanent changes.

Finally, we draw upon a national, longitudinal sample of childbearing-aged women: the National Survey of Fertility Barriers (NSFB). The first and second waves of data occurred approximately three years apart, with the first wave interviews before the recent recession began,

and all second wave interviews occurring during the Great Recession. The data set includes extensive questions about fertility plans, preferences, and behaviors in both waves, as well as a variety of questions that allow us to probe different dimensions of women's and their partner's economic circumstances. Because the first wave was collected before the recession, we can probe how changes in women's and/or their partner's employment status, household income, and economic hardship contribute to changes in fertility intentions, family size preferences, and behaviors during a recession.

From an economic perspective, declines in partner employment and increases in economic hardship should be associated with declines in the odds of having a baby, declines in fertility intentions, declines in ideal family size, and declines in the importance of parenthood. Because raising children is expensive, lower income should lead to lower likelihood of giving birth. The opportunity costs that women might incur due to a birth suggest that increases in women's employment should be associated with lower odds of giving birth and decreased fertility intentions, preferences, and importance. From a life course perspective, timing of the recession in women's lives and the impact on social norms about having children are relevant. If the economic recession leads to social norms of lower levels of fertility, then overall family size preferences, fertility intentions, and importance of parenthood should have declined.

Data and Methods

Sample

The National Survey of Fertility Barriers (NSFB) conducted telephone interviews with a probability-based sample of 4,787 U.S women aged 25 to 45 during the years 2005-2006 (Wave 1) with follow-up interviews three years after the initial interview, roughly occurring between 2008-2009 (Wave 2). Interviews were also conducted at wave 1 with about 20% of partners of

the main respondents to permit analyses of couple-level data, but the partner interviews are not included in this analysis. This Random Digit Dialing sample consists of a nationally representative sample, plus an over-sample of Census central office codes with a high minority population to ensure sufficient numbers of women for subgroup analyses. The response rate for the participants answering the screening questions using the American Association of Public Opinion response rate number 4 calculation is 53 percent, typical for contemporary RDD surveys (McCarty et al., 2006). Keeter et al. (2006) demonstrate that surveys with modest response rates can still have minimal bias. Information about the study design and measures can be accessed at: http://sodapop.pop.psu.edu/codebooks/nsfb/wave1/. The public-access data files can be accessed at: http://sodapop.pop.psu.edu/data-collections/nsfb. Extensive comparisons with Census data indicate the weighted sample is representative of women age 25-45 in the United States. The sample for this analysis includes all women (N=1301) who were interviewed during both waves 1 and 2 and who responded to questions about fertility in both waves.

Measures

Fertility variables

The fertility and economic measures used in this study were assessed at both waves with the same questions. To generate the change scores, we subtracted wave 1 variables from wave 2 variables. In addition to change scores, we created dummy variables for the fertility and economic variables indicating category change between waves (e.g., stable, increase, or decrease). The *number of children* is a continuous variable representing number of biological children the respondent has, and an increased change score indicates a birth occurred between waves. The *fertility intentions* measure is based on two questions that are combined to create a continuous variable for each wave. Respondents were asked, "Do you intend to have a baby?"

and “Of course, sometimes things do not work out exactly as we intend them to, or something makes us change our minds. In your case, how sure are you that you will/will not have a child?” Responses were coded so that low scores indicate “Very sure do not intend” (= -3) to high scores of “Very sure do intend” (+3). Women unsure about intentions or who do not know their intentions are coded 0 (the center of the scale).

Family size preference is a continuous variable and was measured by the response to the question, “The next question asks about the number of children you consider ideal for yourself. This could be more or less than you already have or more or less than you expect to have. If you yourself could choose exactly the number of children to have in your whole life, how many would you choose?” The variable, *importance of parenthood*, was constructed by averaging responses to five questions. Four items are measured on Likert scales (strongly agree to strongly disagree): 1) “Having children is important to my feeling complete as a woman,” 2) “I always thought I would be a parent,” 3) “I think my life will be or is more fulfilling with children,” and 4) “It is important for me to have children.” A fifth item is measured on a scale from very important to not important: 5) “How important is each of the following in your life…raising children?” Factor analyses showed that these items formed a single factor that explained 64 percent of the variance. The Cronbach’s alpha is high (α=.86). This scale has a slight positive skew (1.79).

Economic variables

Responses to three questions in each wave are combined into a scale to measure *economic hardship*: (1) “During the last 12 months, how often did it happen that you had trouble paying bills?,” (2) “During the last 12 months, how often did it happen that you did not have enough money to buy food, clothes, or other things your household needed?,” and (3) “During

the last 12 months, how often did it happen that you did not have enough money to pay for medical care?" This is a unidimensional scale with high reliability (α = .82 in wave 1).

Family income was first constructed as an ordinal scale ranging from 1 (<$5,000) to 12 ($100,000+). We then substituted the midpoint of each category for the category value in order to convert this into a continuous scale in dollar units. *Employment status* was coded as a categorical variable, where 0 indicated not employed; 1 indicated part-time employment, and 2 indicated employed full-time (e.g., over 35 hours per week). *Partner's employment status* was reported by the female primary respondents and was also coded as a categorical variable with 0 = not employed; 1 = employed part-time; and 2 = employed full-time.

Social/demographic control variables

Relationship transitions were measured as continuously married, continuously single, changing from single to cohabiting/married or changing from cohabiting/married to single. *Parity transitions* were measured by six categories: a) no child at wave 1 and no addition of a child at wave 2; b) no child at wave 1 and added one or more child at wave 2; c) one child at wave 1 and no additional child at wave 2; d) one child at wave 1 and added a child or more at wave 2; e) two or more children at wave 1 and no additional children at wave 2; f) two or more children at wave 1 and no additional children at wave 2; g) two or more children at wave 1 and added one or more children at wave 2. The models control for three additional variables that are associated with fertility: age, education, and race/ethnicity. Respondents reported their ages at wave 1, which are coded into age categories of *30-34*, *35-39*, and *40-45*, with 25-29 as the reference group. *Education* is coded as a dichotomous variable where 1 = at least a bachelor's degree compared to less than a bachelor's degree. Race/ethnicity is measured by three indicator variables (*Black*, *Hispanic*, or "*other*" compared to non-Hispanic white).

Analytical strategy

Three types of statistical analyses were utilized in this study to assess the associations between economic changes and changes in fertility behaviors, intentions, family size preference, and importance of parenthood. We first used multivariate ordinary least squares (OLS) regression and change-score measures to assess changes in number of children, fertility intentions, ideal family size, and importance of parenthood. Change-score models are advantageous because they become fixed-effects estimators when only two panels are used, and they examine only within-person variance (Johnson, 2005). Estimating coefficients based on individual-level change in the independent and dependent variables reduces biases due to unobserved time-invariant family or individual differences (Wooldridge, 2009). Models controlled for the variables listed in Table 1, which include time-invariant measures of respondents' individual and household characteristics. In formal fixed effects models, these variables would drop from the model, but in the functionally equivalent two-period change models, key time-invariant variables, such as relationship structure, age, education, and race can be included to control for selection into transition categories. Time varying controls were also included in the models. Analyses were conducted separately for women who were childless at wave 1, those who had at least one child at wave 1, and those who had two or more children.

In a second analysis, we examined how specific changes in economic circumstances, as compared to stable circumstances, affected the likelihood of a birth between waves 1 and 2 using binary logistic regression. Parity at wave 1, in addition to other control variables, was included in the model.

In the third analysis, we used multinomial logistic regression to assess change across fertility intentions, ideals, and importance categories. We used maximum likelihood to estimate

the log odds of being in a given dependent variable category, as compared to the reference category (Long & Freese, 2001). In the three dependent variables in this analysis, "stable" is the reference category. We controlled for the variables listed in Table 1.

Results

Means, percentages and standard deviations for dependent and independent variables are displayed in Table 1. T-tests were conducted to determine if changes between waves were significant at the $p<.05$ level. Between waves 1 and 2, mean fertility intentions decreased, household income increased, and number of children increased significantly. Average change in family size preference, importance of parenthood, economic hardship, employment status, and partner's employment status did not change significantly. More women reported stable intentions and family size preferences than reported a decline or increase in intentions or preferences. Though the categories were fairly equal among stable, increased, and decreased importance of parenthood, the percentage of women who reported a decrease in importance of parenthood over the three-year period was slightly larger than the percentages in the other two categories.

[Table 1 about here]

Linear change score analyses are presented in Table 2. Analyses were conducted separately by parity at wave 1. Many of the overall patterns were similar by parity, but there are some noteworthy differences, Among women who were childless or who had two or more children at wave I, women who experienced increases in employment status had fewer changes (e.g., births) in number of children. Giving birth between waves 1 and 2 was associated with a decrease in fertility intentions among women at all parity levels. Among women who were childless at wave 1, experiencing increases in economic hardship and employment status was associated with higher fertility intentions. Consistent with economic models of childbearing,

childless women who experienced a rise in household income reported a lower family size preference at the second interview, but women with one child at wave 1 who experienced an increase in economic hardship reported an increased family size preference. Women who were childless at wave 1 were the only group who experienced changes in importance of parenthood associated with economic changes; an increase in household income was associated with lower importance of parenthood, and an increase in partner's employment status was associated with higher importance of parenthood.

[Table2 about here]

A logistic regression analysis further probed factors associated with the odds of giving birth between waves (see Table 3). Odds ratios suggest that among all women, a decrease in women's work hours was associated with an 87% increase in the odds of giving birth between waves. The measures do not provide a way to determine the timing of changes in employment hours and giving birth. Analyses did not reveal any additional associations between economic changes and the likelihood of giving birth between waves 1 and 2.

[Table 3 about here]

The multinomial logistic regression analysis, presented in Table 4, examined factors associated with changes in fertility intentions, family size preferences, and importance categories, as compared to women whose intentions, family size preferences, and importance remained stable over the two waves of the study. Table 4 shows how increases and decreases in economic circumstances are associated with changes in family size preferences, fertility intentions, and importance of parenthood. The results do not support an economic model of fertility decision making, with the possible exception of opportunity costs associated with childbearing. For example, both an increase (OR=4.29) or a decrease (OR=2.72) in partner's

work hours compared to stable work between interviews was associated with increased fertility intentions. Yet findings also suggest that when women are contributing substantially to household income, fertility intentions and importance decline; for example, women whose partners increased employment hours had much lower odds (OR=.29) of having decreased importance of parenthood scores compared to women whose male partners had stable employment hours. An increase in own work hours compared to stable work was associated with lower odds of fertility intentions, which follows the rationale of opportunity costs; regardless of whether women are working more due to financial need or promotion, a birth could make it difficult to continue to work the additional hours and contribute at a high rate to household income. In addition, women who reported higher compared to stable incomes at the second interview were less likely to increase their family size preferences, and women who had less economic hardship at the second interview compared to women who had stable economic hardship were more likely to have lower importance of parenthood at the second interview. These findings are aligned with prior research suggesting that factors competing with parenthood, such as career development and leisure, are greater for those with higher socioeconomic status (Mills et al., 2011).

[Table 4 about here]

Discussion and Conclusion

Prior research has indicated a link between economic recessions and declines in population birth rates (e.g., Neels, 2010; Rindfuss, Morgan, & Swicegood, 1988; Sobotka et al, 2011). Although fertility intentions are a strong predictor of actual fertility (Quesnel-Vallée & Morgan, 2003; Schoen, Astone, Kim, Nathanson, & Fields, 1999), little research has focused on exploring the link between changes in economic uncertainty and fertility behaviors, intentions,

family size preferences, and values (Testa & Basten, 2012). Furthermore, most research has focused on relationships between changes in economic indicators and changes in fertility rates at the aggregate level (Guzzo, 2012). Guzzo (2012) recently used two cross-sectional data sets to explore links between economic conditions and fertility intentions and behavior at the level of the individual, but we are not aware of any studies that have used panel data to explore how changes in the economic circumstances of individuals affect fertility intentions and behavior in those same individuals. Hayford (2009) conducted one of the few within person changes in ideal fertility, but she did not focus primarily on changes in economic circumstances.

This study expands prior research by using panel data to examine examining how changes in women's economic conditions (family income, economic hardship, employment status, partner's employment status) are associated with changes in women's fertility behaviors, intentions, family size preferences, and values during the current recession. The within-person change score analysis is a particularly rigorous test of economic influences on fertility. In addition, the current project controlled for possible effects of both time-varying and time-invariant demographic variables.

We provide several insights into the relevance of economic circumstances for fertility behaviors and attitudes by using the changes women experienced during the U.S. Great Recession. Most of the analyses indicate little impact of economic change on fertility behaviors or attitudes among American women of reproductive age, but a few interesting findings were revealed. In the change-score analyses, we found that women who experienced an improvement in employment status were less likely to experience a birth. In an additional analyses presented in Table 3, we further examined this relationship using change categories and found women to be 87% more likely to give birth in the three years between the waves when they experienced a

decline in work hours. It is unclear from the data whether women took advantage of the timing of less employment to give birth, or whether they reduced their employment in response to a birth. Prior research (e.g., Budig, 2003) has found a bi-directional relationship of reduced work hours among women and fertility.

In addition, we found several interesting associations that were limited to women who were childless at wave 1. Results indicated that increases in economic hardship and employment status were associated with increased fertility intentions but not births. This suggests that many women in this group may be postponing their childbearing due to both direct costs (for women experiencing greater economic hardship) and indirect costs (for women working more hours). We did not find many significant associations between economic changes and fertility outcomes among women who were already mothers by wave 1. This is in accordance with prior research indicating that social changes have more of an impact on the timing and occurrence of first births than higher order births (Dey & Wasoff, 2010).

We utilized multinomial logistic regression analyses to examine relationships between specific changes (e.g., increase or decrease vs. stable) in economic circumstances and fertility outcomes. In general, our findings do not support the conclusion that worse individual economic circumstances necessarily result in lowered fertility intentions, family size preferences, and importance of parenthood but rather suggest that changes in economic circumstances influence fertility intentions, family size preferences, and importance of parenthood by changing the calculus of calculus of costs and benefits generally believed to be involved in fertility decisions. For example, women's increased employment status is associated with decreased fertility intentions despite the likelihood that increased employment status may make children more affordable. Though we cannot tease apart whether women who increased their work hours did so

in response to a promotion or economic hardship, it appears that increased work hours are associated with lower intentions because they increase the opportunity costs of having children. Likewise, the reduced family size preference among those who experienced greater income between waves may be due to competing factors such as leisure time that are more readily available to those with greater incomes. In addition, among women in the sample who may have lower opportunity costs of children due to partners who increased their work hours, we found increased fertility intentions and a lower likelihood of decreased importance of parenthood. We are unsure as to why intentions also increased for women whose partner's reduced their work hours; perhaps the finding was due to outliers in the relatively small group of partners with reduced hours.

There are several limitations to this study. The NSFB was not designed to explore the relationship between economic circumstances and fertility behaviors and attitudes; therefore questions about individual economic circumstances are not as detailed as would be useful for more fully exploring how women perceive their economic circumstances and fertility. We wish that we had more information about the meaning of economic indicators for individuals. For example, women were not asked if they were delaying or forgoing having children *because* of economic concerns. In the absence of more detailed information, it is impossible to know, for example, whether an increase in a woman's work hours is indicative of an improvement (e.g. a promotion) or deterioration in economic circumstances (e.g. a need to work extra hours to make ends meet). In addition, including women under twenty-five could be particularly important as they are entering prime reproductive years during a recession.

If we had month-by-month calendar data, we could better sort out causal ordering of events that occurred between waves. For example, as aforementioned, our data show that a

decline in women's employment status is associated with an increase in the number of children, but we are unable to determine whether a decline in employment status led to a decision to have a child or whether the birth of a child led to a change in employment status. The within-person change score analysis accounts for all stable characteristics of individuals between interviews. More waves of data would have allowed for a more nuanced analysis of trajectories of fertility behavior and intentions and their relationship to economic conditions. Still, two waves of data and change score analyses provide a powerful lens for assessing the importance of economic considerations for individual women.

Our analysis focuses on changes in economic circumstances and changes in fertility experiences. Our results suggest that at least some of the decline in fertility that occurred following the Great Recession may be due in part to increased opportunity costs for women. Yet our findings also reveal new questions. Results indicated that women who experienced higher income and less economic hardship reported declining family size preferences and importance of parenthood; are these early signs of shifting norms about family size and the importance of parenthood? As economic circumstances improve for more Americans, should we expect to see even greater declines in ideal family size and importance of parenthood?

Another important question that remains is how younger women were affected by the recession. It is possible that younger women delayed the onset of having children because of general fears about the economy. Those women are not part of this study because the NSFB only followed women who were twenty-five or older. If early fertility ideals and intentions are based on general social norms (Hagewen & Morgan, 2005), then the recession is likely to have the biggest impact on women in their late teens and early twenties who are entering reproductive years. Cohort analyses should reveal whether young women entering reproductive years in this

decade differ from women entering reproductive age in prior decades. Future research should explore within-subgroup models because prior research suggests that economic downturns may lead to differential fertility consequences depending on social class, sector of employment and other issues related to work-family balance (Guzzo, 2012; Sobotka et al., 2011). For example, the higher fertility intentions that Hispanic women expressed as compared to White women supports an argument for fertility postponement, which Livingston and Cohn (2012) suggest is likely because the great recession was harder on Hispanic than White women.

The possibility remains that the recession and higher direct and indirect costs of children associated with it could contribute to new norms about when it is appropriate to have children and how many children are appropriate to have. If this is the case, than the effects of the recession on fertility might occur both indirectly through shaping cultural norms and directly by raising economic concerns among women who face high opportunity costs of having children. It thus appears unlikely that improved economic conditions will result in increased fertility, unless women's opportunity costs for childbearing decrease. In addition, if the recession results in changes in social norms about ideal family size or the importance of parenthood, the consequences of the recession could become even more dramatic.

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Table 1. *Descriptive Statistics of Study Variables (N = 1301).*

	Full Sample			
Variables	*M or %*	*SD*	*Range*	*p*
Fertility intentions, ideals, and importance transitions				
Change in fertility intentions	-.66	1.98	-6 - 6	***
Fertility intentions stable	35.8%			
Fertility intentions declined	30.5%			
Fertility intentions increased	7.6%			
Change in ideal family size	.02	1.39	-12 - 14	
Ideal number stable	62.0%			
Ideal number declined	17.8%			
Ideal number increased	20.2%			
Change in importance of parenthood	-.02	.53	-2 - 2	
Importance of parenthood stable	31.5%			
Importance of parenthood declined	36.2%			
Importance of parenthood increased	32.2%			
Economic transitions				
Change in economic hardship	.03	.69	-3 - 3	
Economic hardship stable	45.9%			
Economic hardship declined	23.1%			
Economic hardship increased	29.1%			
Change in household income	.47	1.73	-11 - 10	***
Household income stable	33.3%			
Household income declined	15.6%			
Household income increased	41.3%			
Change in employment status	.00	.80	-2 - 2	
Employment status stable	71.8%			
Employment status declined	14.4%			
Employment status increased	13.9%			
Change in partner's employment status	-.02	.77	-2 - 2	
Partner's employment status stable	82.7%			
Partner's employment status declined	8.9%			
Partner's employment status increased	8.4%			
Time varying household controls				
Relationship transitions				
Stable union	71%			
Continuously single	19.3%			
Single to Cohab/Marriage	4.1%			
Cohab/Married to Single	6.9%			
Parity transitions				
Change in number of children (e.g., birth between waves)	.21	.47	0 - 3	***
No child W1, no addition W2	29.0%			

No child W1, +1 or more added by W2	7.7%
1 child W1, no addition W2	16.4%
1 child W1, +1 or more added by W2	7.4%
2+ children W1, no addition W2	20.4%
2+ children W1, +1 or more added by W2	3.9%
Time invariant household controls, W1	
W1 Age	
25-29	20.6%
30-34	24.3%
35-39	24.4%
40-45	30.7%
W1 Education (at least bachelor's degree)	32.4%
W1 Race/Ethnicity	
White	71.7%
African American	12.5%
Hispanic	9.4%
Other race	6.5%
N	1301

*p<.05 **p<.01 ***p<.001; one-sample t tests

Table 2. *Linear Change-Score Predictors of Changes in Births, Intentions, Ideal Family Size, and Importance of Parenthood by Parity (N=1301)*

	Childless at Wave 1											
	Number of children			Fertility Intentions			Ideal Family Size			Importance of Parenthood		
Variables	*b*		*SE*	*b*		*SE*	*b*		*SE*	*b*		*SE*
Fertility/Economic transitions												
Change in number of children				-.85	***	.22	.15		.14	.06		.07
Change in economic hardship	.03		.04	.40	*	.17	.09		.10	-.09		.05
Change in household income	.02		.01	-.01		.06	-.07	*	.03	-.03	*	.02
Change in employment status	-.12	***	.03	.27	*	.13	.06		.08	.05		.04
Change in partner's employment status	-.06		.04	.00		.15	.13		.10	.10	*	.05
Time-varying controls												
Relationship status (ref: stable union)												
Continuously single	-.29	***	.06	-.04		.29	.19		.17	-.23	**	.09
Single to Cohab/Marriage	.06		.12	.57		.51	-.24		.31	-.46	**	.16
Cohab/Married to Single	-.18		.10	.06		.39	.50	*	.25	.11		.13
Time-invariant controls												
W1 Age (ref: 25 - 29)												
30-34	-.03		.06	-.78	**	.27	-.10		.16	-.09		.08
35-39	-.28	***	.07	-.72	*	.32	-.07		.19	.08		.09
40-45	-.38	***	.06	-.41		.29	.00		.17	.09		.09
W1 Education (at least bachelor's degree)	-.04		.06	-.32		.26	.02		.16	-.16		.08
W1 Race/ethnicity (ref: non-Hispanic White)												
African American	.03		.08	-.25		.32	.11		.20	.02		.10
Hispanic	.08		.10	.44		.45	-.04		.26	.09		.13
Other race	.33	**	.10	.47		.40	-.02		.27	.32	*	.14
Constant	.48	***	.06	.15		.29	.06		.17	.09		.09

*p<.05. **p<.01. ***p<.001.

Table 2. *Change-Score Predictors of Changes in Births, Intentions, Ideal Family Size, and Importance of Parenthood by Parity (N=1301)*

	Parity 1 at Wave 1											
	Number of children			Fertility Intentions			Ideal Family Size			Importance of Parenthood		
Variables	*b*		*SE*	*b*		*SE*	*b*		*SE*	*b*		*SE*
Fertility/Economic transitions												
Change in number of children				-1.76	***	.31	-.03		.21	-.03		.07
Change in economic hardship	-.03		.05	.29		.22	.49	**	.16	-.03		.05
Change in household income	.00		.02	-.11		.09	.01		.06	-.01		.02
Change in employment status	.00		.04	.09		.18	-.09		.13	-.03		.04
Change in partner's employment status	.00		.05	-.17		.22	.00		.17	.03		.05
Time-varying controls												
Relationship status (ref: stable union)												
Continuously single	-.28	**	.09	-.04		.42	.15		.29	-.20	*	.09
Single to Cohab/Marriage	-.33		.20	-.33		.85	-.25		.66	-.20		.21
Cohab/Married to Single	-.29	*	.13	-.16		.68	.09		.44	-.02		.14
Time-invariant controls												
W1 Age (ref: 25 - 29)												
30-34	-.39	***	.09	-.60		.41	.11		.30	.09		.09
35-39	-.66	***	.09	-.22		.46	.03		.32	.06		.10
40-45	-.78	***	.08	.59		.45	.32		.32	.12		.10
W1 Education (at least bachelor's degree)	.11		.07	-.29		.32	.11		.23	-.07		.07
W1 Race/ethnicity (ref: non-Hispanic White)												
African American	-.11		.10	-.18		.45	.21		.32	.04		.10
Hispanic	.00		.11	.27		.47	-.19		.35	-.01		.11
Other race	.17		.10	1.37		.50	-.03		.34	.15		.11
Constant	.88	***	.07	-.98	*	.44	-.17		.31	.00		.10

*p<.05. **p<.01. ***p<.001.

Table 2. *Change-Score Predictors of Changes in Births, Intentions, Ideal Family Size, and Importance of Parenthood by Parity (N=1338)*

	Parity 2+ at Wave 1											
	Number of children			Fertility Intentions			Ideal Family Size			Importance of Parenthood		
Variables	*b*		*SE*	*b*		*SE*	*b*		*SE*	*b*		*SE*
Fertility/Economic transitions												
Change in number of children				-1.26	***	.24	.32		.17	-.03		.06
Change in economic hardship	-.01		.02	-.01		.10	-.09		.08	-.04		.03
Change in household income	.00		.01	.01		.05	-.01		.04	.02		.01
Change in employment status	-.04	*	.02	.02		.08	-.03		.07	-.03		.03
Change in partner's employment status	.05		.03	-.05		.14	-.06		.10	.03		.04
Time-varying controls												
Relationship status (ref: stable union)												
Continuously single	-.12	*	.06	-.14		.27	-.63	**	.22	-.20	*	.08
Single to Cohab/Marriage	-.20		.11	.16		.49	.20		.41	.24		.15
Cohab/Married to Single	-.02		.08	.41		.35	-.14		.29	-.02		.11
Time-invariant controls												
W1 Age (ref: 25 - 29)												
30-34	-.08		.05	.33		.27	-.20		.20	-.09		.07
35-39	-.24	***	.05	.66	**	.25	-.06		.20	.04		.07
40-45	-.28	***	.05	.89	***	.24	-.03		.19	.03		.07
W1 Education (at least bachelor's degree)	.03		.03	-.36	*	.16	.07		.13	-.09		.05
W1 Race/ethnicity (ref: non-Hispanic White)												
African American	-.02		.05	.09		.24	.49	**	.19	-.01		.07
Hispanic	.02		.05	.56	*	.24	.24		.18	.12		.07
Other race	-.12		.08	.17		.39	.70	*	.29	.04		.11
Constant	.33	***	.05	-.93	***	.23	-.10		.19	.01		.07

*p<.05. **p<.01. ***p<.001.

Table 3. Economic Transitions and the Odds of Giving Birth Between Waves (N=1301).

	Birth between waves		
Variables	*OR*		*SE*
Economic transitions (ref: stable btwn waves)			
Greater economic hardship	1.42		.21
Less economic hardship	.97		.23
Increase in household income	1.21		.19
Decrease in household income	.98		.28
Increase in work hours	.67		.27
Decrease in work hours	1.87	**	.22
Increase in partner's work hours	.56		.39
Decrease in partner's work hours	.70		.38
Time-varying controls			
Relationship status (ref: stable union)			
Continuously single	.06	***	.46
Single to Cohab/Marriage	.73		.52
Cohab/Married to Single	.54		.42
Time-invariant controls			
Parity status (ref: childless at W1)			
Parity = 1 at W1	1.47		.22
Parity = 2 at W1	.47	***	.21
W1 Age (ref: 25-29)			
30-34	.67	*	.20
35-39	.19	***	.25
40-45	.04	***	.36
W1 Education (at least bachelor's degree)	1.52	*	.19
W1 Race/ethnicity (ref: non-Hispanic White)			
African American	1.13		.31
Hispanic	1.20		.28
Other race	1.15		.32

Constant	.76	.27

*p<.05. **p<.01. ***p<.001.

Table 4. *Multinomial Logistic Regression of Fertility, Intentions, Ideals, and Importance Change Categories*

	Fertility Intentions (ref: stable)				Ideal Family Size (ref: stable)				Import. of Parenthood (ref: stable)			
	Increase		Decrease		Increase		Decrease		Increase		Decrease	
Variables	*OR*	*SE*	*OR*	*SE*	*OR*	*SE*	*OR*	*SE*	*OR*	*SE*	*OR*	*SE*
Economic transitions (ref: stable btwn waves)												
Greater economic hardship	1.52	.28	.73	.20	1.23	.18	1.07	.18	.77	.17	1.03	.17
Less economic hardship	1.04	.31	1.37	.19	1.22	.19	1.18	.19	1.24	.19	1.48 *	.19
Increase in household income	1.11	.26	1.22	.17	.71 *	.17	1.12	.17	.84	.16	.79	.16
Decrease in household income	.52	.37	.97	.24	1.18	.22	1.38	.23	.81	.22	.88	.21
Increase in work hours	1.04	.32	.62 *	.24	1.05	.22	1.37	.21	.94	.20	.70	.21
Decrease in work hours	.62	.37	.87	.22	1.02	.21	1.12	.22	.94	.20	.77	.21
Increase in partner's work hours	4.29 **	.46	1.52	.39	1.48	.32	.59	.42	.73	.31	.29 **	.39
Decrease in partner's work hours	2.72 *	.45	.99	.34	1.37	.29	.93	.33	.81	.31	1.01	.29
Time-varying controls												
Parity status (ref: childless W1 and W2)												
No child W1, +1 or more added by W2	1.30	.48	3.03 **	.32	.67	.31	.55	.37	1.75	.32	1.34	.32
1 child W1, no addition W2	.41 *	.43	2.27 ***	.21	.69	.22	.85	.22	.80	.21	.75	.20
1 child W1, +1 or more added by W2	.49	.78	8.42 ***	.36	.84	.32	1.25	.32	.62	.30	.43 **	.31
2+ children W1, no addition W2	.67	.31	.84	.21	.83	.20	1.16	.20	.84	.19	.72	.19
2+ children W1, +1 or more added by W2	.67	.98	4.67 **	.48	1.92	.38	1.46	.44	.55	.41	.54	.40
Relationship status (ref: stable union)												
Continuously single	1.74	.35	1.40	.24	.87	.23	1.21	.22	1.07	.22	1.70 *	.21
Single to Cohab/Marriage	.59	.60	.69	.52	.76	.46	1.50	.53	.99	.43	2.09	.49
Cohab/Married to Single	1.39	.51	2.03	.38	1.56	.33	1.45	.37	1.48	.35	1.31	.35
Time-invariant controls												
W1 Age (ref: 25-29)												

30-34	1.17		.34	1.25		.23	.49	**	.22	.52	**	.23	.95	.22	1.27	.21
35-39	.67		.36	.89		.24	.69		.22	.95		.23	1.01	.22	.91	.22
40-45	.47	*	.34	.47	**	.23	.48	**	.22	.64	*	.22	.94	.21	.90	.21
W1 Education (at least bachelor's degree)	.73		.31	1.25		.18	.92		.18	.98		.18	.88	.17	1.27	.17
W1 Race/ethnicity (ref: non-Hispanic White)																
African American	.92		.37	1.03		.24	1.47		.23	1.05		.24	1.38	.24	1.23	.23
Hispanic	3.44	***	.33	1.03		.30	1.24		.25	1.07		.26	1.01	.24	.75	.25
Other race	2.43	*	.45	.93		.31	1.60		.29	.79		.34	.91	.28	.60	.30

*p<.05. **p<.01. ***p<.001.