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RELIGIOSITY AND FERTILITY DIFFERENCES IN THE CONTEMPORARY U.S.: EVIDENCE FROM THE 2002 NATIONAL SURVEY OF FAMILY GROWTH

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Abstract: Using data from the 2002 National Survey of Family Growth (NSFG), we show that women who report that religion is "very important" in their everyday life have both higher fertility and higher intended fertility than those saying religion is "somewhat important" or "not important." Further, net of intended fertility, factors such as unwanted fertility, age at childbearing, or degree of fertility postponement seem not to contribute to these religiosity differentials in fertility. This answer prompts more fundamental questions: what is the nature of this greater "religiosity"? And why do the more religious want more children? Using items available in the 2002 NSFG, we show that those saying religion is more important have more traditional gender and family attitudes and that these attitudinal differences account for a substantial part of the initial fertility differential. We speculate regarding other contributing causes.

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There is a long tradition of research on religion and fertility in the United States, largely focusing on Catholic-Protestant differences. These studies documented persistent differences between Catholics and Protestants in the early part of the twentieth century and continuing through the Baby Boom (e.g. Freedman, Whelpton, and Campbell 1959; Ryder and Westoff 1971; Whelpton, Campbell, and Patterson 1966). Higher fertility among Catholics was attributed to Catholic doctrine prohibiting birth control, but also to education and income differences between Catholics and Protestants, to the distinctive family culture of immigrant Catholic populations, and to the prominent place of churches and Catholic schools in Catholic communities (Sherkat and Ellison 1999; Westoff and Bumpass 1973; Westoff and Jones 1979).

The theoretical frameworks commonly used to study religion and fertility fit these denominational differences. For instance, McQuillan (2004) outlines three conditions that produce religious effects on fertility. First, a religion must disseminate norms about specific fertility-related behaviors. In addition, the religious organization must be able to enforce conformity to these norms among its members -- either through social influence or through sanctions. Finally, religion is most likely to be influential when members feel a strong sense of religious solidarity, that is, when religion is a highly salient aspect of individual identity.

Starting in the 1970s, demographers documented convergence in Catholic and Protestant birth rates, the "end" of Catholic fertility (Mosher and Hendershot 1984; Westoff and Jones 1979). With this convergence, the focus of the demographic literature on religion shifted. Other religious groups with pro-natalist doctrine, such as Mormons and conservative Protestants, gained attention for higher than average levels of fertility (Heaton 1986; Hout, Greeley, and Wilde 2001; Marcum 1981; Mosher, Williams, and Johnson 1992). The theoretical framework described above may apply to these groups. However, recent research also moves beyond the

study of particular denominations to consider the impact of the strength of religious sentiment, measured using frequency of attendance or frequency of communion (e.g. Mosher and Hendershot 1984; Mosher, Williams, and Johnson 1992; Marcum 1981, 1988). These studies consistently find higher fertility among more religiously active women across denominations, although the magnitude of the effect varies with the measures used for fertility and for religiosity.

The replacement of Catholic-Protestant differences in birth rates with a more general "religion effect" coincides with the declining importance of denomination in the American religious landscape in the post-Baby Boom era. Between the 1950s and the 1970s, rates of denominational switching increased, and social differences across denominations (e.g. region of residence, education level) decreased (Wuthnow 1988). Cross-denominational differences in social and political beliefs also faded. In contrast, divisions within denomination in both religious orientation and social values increased during the 1970s and 1980s (Wuthnow 1996). In the early twenty-first century, American congregations focus on loose readings of Biblical texts rather than denominational-specific doctrines or teaching, and emphasize individual spiritual expression rather than conformity to a fixed set of rules (Wolfe 2005).

These shifts need not be interpreted as a decline in the strength or importance of religion. However, they do suggest that specific religious teachings about fertility-related behavior and institutional enforcement of these norms may be less important components of the relationship between religion and fertility. Instead, religious identity may become more salient. Ammerman (1997) describes the emergence of what she calls "Golden Rule" Christians, believers who turn to religion as a source of community and family values. Religious identities in the contemporary United States may be understood as cultural, in the sense that they are rooted in different ways of

"seeing the world" or framing events (Wuthnow 1996: 325). These ways of framing events (hereafter, "schema"; see Sewell 1992, Johnson-Hanks et al. 2006) are embedded in and supported by local and more global institutions. Wuthnow (324) argues that religious schemas are reinforced by interactions in "congregations that provide affirming plausibility structures" and extra-congregational "special-purpose groups" that do the same. Schemas relating to family and religion may also be shaped by the interdependence between contemporary American ideology, contemporary American politics, and the institutions of religion and the family.

Empirical studies have consistently found that the more religiously active have stronger family ties and exhibit more conservative family behavior. For instance, marriages between couples who attend church frequently are more stable than marriages between non-attenders (Bramlett and Mosher 2002; Call and Heaton 1997). Mothers for whom religion is very important report better relationships with their children than other mothers, and, among Protestants, actively religious fathers are more involved with their children than fathers who do not attend church (Pearce and Axinn 1998; Wilcox 2004). Among young adults, the more religiously active have lower rates of cohabitation (Thornton, Axinn, and Hill 1992). Greater religious exposure in young adulthood has also been linked to higher fertility intentions (Pearce 2002).

We proceed under the hypothesis that that the elevated fertility rates of more religiously active women are part of a wider link between religious belief and family-related attitudes and behavior. Although these linkages are well established, the mechanisms connecting family behavior to fertility rates are not clear. We focus on establishing these mechanisms before moving on to theorizing about the more distal causes of this phenomenon.

The article is divided into three parts. In the first, we describe the data and discuss our measure of religiosity, a report of "the importance of religion in daily life." In the second section, we document the higher fertility of women who report that religion is very important to them. We then decompose this difference using a conceptual framework for explaining fertility differences first proposed by Bongaarts (2001, 2002; also see Morgan 2003). This model posits that current fertility differences can be explained by differences across groups in fertility intentions, fertility timing, contraceptive failure, infecundity, and competition with work and other time intensive or desirable activities. Consideration of these factors points to fertility intentions as the key factor accounting for religiosity differences in fertility. The final section of the article examines the relationship between religiosity, fertility intentions, socio-demographic characteristics, and family attitudes.

Measuring religiosity

We use data from 7643 women age 15-44 years old interviewed in the 2002 National Survey of Family Growth. The NSFG is a nationally representative survey designed to provide estimates of fertility, marriage, and reproductive health for the U.S. population.[1] Religion is not a primary focus of the survey, but some questions on religion, including religious affiliation, frequency of attendance at religious services, and importance of religion, are included to allow for analysis of religious variation in fertility and family behavior.

In some previous studies of religion and fertility, frequency of religious attendance has been used to measure the strength of religious commitment. However, attendance has been shown to be strongly (albeit non-linearly) influenced by marital status and by the age and number of children living in the home, and so is not ideal for cross-sectional analysis using fertility as an outcome variable (Stolzenberg, Blair-Loy, and Waite 1995).

Instead, we use questions asking respondents about the importance of religion in daily life as a measure of religiosity. All respondents were asked if they had any religious affiliation. Those respondents who identified a religion were then asked about the importance of religion in their daily life, with options of responding that religion was very important, somewhat important, or not important. We combined respondents who reported no religion with those who said that religion was not important to create a single variable representing three levels of religiosity. We interpret this variable as a measure of the prominence or salience of religion as an aspect of individual identity. The question may also capture qualitative variation in religious identity, with "very important" reflecting more conservative religious beliefs (Wuthnow 1988).

Overall, 50% of women said religion was very important, and 31% said religion was somewhat important in their daily lives. The remaining 19% of women had no religious affiliation or said religion was not important in their daily lives (table 1). Reported importance of religion is correlated with current religious affiliation and attendance. Protestants are more likely than Catholics to report that religion is very important to them (65% vs. 49%); among Protestant denominations, those belonging to fundamentalist Protestant denominations (80%) and Baptists and Southern Baptists (70%) are most likely to be in the "very important" group. Frequent attenders are the most likely to say religion is important to them, with 88% of those who go to church weekly saying religion is very important. However, religious attendance and importance are not perfectly correlated -- 21% of women who rarely attend church report that religion is very important in their everyday life.

Table 1: Characteristics associated with religiosity

Religiosity is also associated with other socio-demographic factors, most notably age. The proportion of women who feel that religion is very important to them increases from 43% of

women age 15-19 to 58% of women age 40-44. African American women are more likely to report that religion is very important (70%) compared to either Hispanic (55%) or white non-Hispanic (44%) women. Where sample size permitted, we replicated analyses separately for non-Hispanic whites, African Americans, and Hispanic women; results from these analyses are available from the authors on request. Differences by importance of religion persisted across all racial-ethnic groups and were similar in magnitude, indicating that observed differences are not a by-product of the racial composition of these groups.

Before proceeding to a discussion of religious differences in fertility, we consider issues of causality in studying religion and fertility. As noted above, childbearing has been shown to lead to higher religious attendance (Stolzenburg, Blair-Loy, and Waite 1995). This increase may be due to parents' desire to enroll their children in Sunday school or other religious activities, a mechanism that is less applicable to an attitude-based measure such as self-rated importance of religion. In addition, importance of religion is likely to be more stable over the life course than religious attendance or denominational affiliation. It is possible, however, that having children may change women's outlook and values in ways that make religion more important. Reverse causation is therefore likely.

We minimize this problem by using measures of fertility as close in time to the survey as possible. We use births over the past five years to describe fertility timing and levels of unwanted fertility. In the second section of our analysis, we use intended fertility, rather than actual fertility, as an outcome measure; causal order is less a problem in this section of the analysis. We return to these issues in the following sections.

Describing intended and actual fertility

Conceptual framework

A standard demographic approach to explaining fertility differences in high-fertility populations is the proximate determinants model (Bongaarts 1978), which decomposes fertility into its biological precursors (e.g. coital frequency, length of postpartum abstinence, prevalence of birth control use). In contemporary industrialized countries, use of birth control is almost universal, and biological factors such as the frequency of sexual activity are of little use in explaining variation in birth rates. A model suggested by Bongaarts (2001; 2002) and Morgan (see Morgan 2003; Morgan and Hagewen 2005; Quesnel-Vallée and Morgan 2003) describes a set of fertility determinants more appropriate for low-fertility populations. Specifically, current period fertility levels (the total fertility rate, TFR, the sum of the period age-specific birth rates) can be decomposed into the following components:

$$TFR = IP \times F_u \times F_r \times F_g \times F_t \times F_i \times F_c \quad (1)$$

That is, the total fertility rate (*TFR*) equals the intended parity (*IP*) of women increased or decreased by a set of model parameters that reflect forces not incorporated into women's reports of their childbearing intentions. The foundation of this framework is the concept of intended parity. If all women realize their parity intention, then the TFR = IP. The model parameters that can inflate completed parity vis-à-vis intended fertility include: unwanted fertility (F_u), replacement of children that may have died (F_r), and additional children needed to satisfy strong gender preferences (F_g). These effects all lead to having more children than initially intended; the parameters are thus greater than 1.0. Other parameters (at least in recent periods) would be expected to take on values less than 1.0 and thus reduce fertility relative to intentions. These factors include changes in the timing of fertility (F_t), subfecundity and infecundity (F_i), and

competition with other energy and time intensive activities that may lead persons to revise downward their intentions (F_c), especially at older ages.

This model places intended parity at the core of a conceptual model of contemporary fertility, and provides a framework for understanding fertility intentions and the set of factors that modify or frustrate them. Here, we use this framework to determine the role of fertility intentions in producing religious differences in U.S. fertility.

Data and measures

Data come from the 2002 NSFG, described above. All women in the survey are asked how many children they have had, if any, and report the dates of all live births. For each pregnancy, women are asked if they wanted to become pregnant at that time, later, or not at all. In a separate section, women are asked whether they were using contraception at the time they became pregnant, and if not, if they were not contracepting specifically in order to become pregnant. We take measures of fertility, unintended fertility[2], and fertility timing[3] from these reproductive histories.

We discuss both completed fertility and total fertility rate. Completed fertility is simply the number of children ever born to a woman at the survey date. The total fertility rate (TFR) is an aggregate measure describing population fertility behavior, calculated by adding up the age-specific fertility rates for all age groups. The TFR is usually interpreted as the number of children a woman would have if current age-specific fertility rates were applied throughout her lifetime. The TFR is a period measure, in this case based on fertility rates over the five years prior to the 2002 survey. It is possible that women become more religious with the birth of each child. However, we believe that giving birth in the recent past is less likely to increase religiosity

than cumulative fertility over the lifetime, and that the TFR is therefore less subject to reverse causation than completed fertility.

Unwanted fertility is measured using a direct question about the wantedness of recent births. We include all births over the past five years, and classify these births by the reported religiosity of the mother at the time of the survey. A substantial literature on unwanted fertility has shown that retrospective reports underestimate levels of unwanted fertility, because women are reluctant to label an existing child as unwanted (e.g. Joyce, Kaestner, and Korenman 2002; Westoff and Ryder 1977; Williams and Abma 2000). It is possible that women for whom religion is very important are more prone to this type of post-hoc rationalization than less religious women. Data on contraceptive use or non-use at conception have been hypothesized to be less sensitive to reporting bias (Crissey 2005; Guzman, Manlove, and Moore 2006; Hayford and Guzzo 2006). We therefore also report levels of unplanned fertility classified by religiosity of mother at the time of the survey. We use contraceptive use histories to attribute births to planned conceptions or contraceptive failure.

The timing factor in the Bongaarts model, F_t , is a technical correction for the distorting effects of cohort changes in fertility timing on period measures of TFR. The impact of changes in the timing of childbearing can be approximated using a correction suggested by Bongaarts and Feeney (1998). The data requirements for calculating this correction factor are intensive, requiring information on parity-specific changes in mean age at birth within each religious group. We attempted to calculate the Bongaarts-Feeney correction factor using data from the NSFG, but because of the small number of births in each parity-religiosity group, estimates were unstable: The standard errors for our calculated timing changes were larger than the actual timing changes calculated based on vital statistics reports of all births in the United States. To get a

sense of differences in fertility timing across religiosity groups, we calculated mean age at first and second birth for births over the past five years by level of religiosity.

Biological differences in the ability to achieve intended parity are represented by F_i, the level of sub- and infecundity. Differences in F_i are largely attributable to differences in the timing of first births; we do not calculate F_i directly but use differences in fertility timing to assess the probable impact of infecundity.

Intended family size is measured through a series of questions asking women about their intended future childbearing. For women who are married or cohabiting, intentions refer to joint intentions with the current partner; for single women, intentions refer to their own behavior. During the interview, a preface to the questions on fertility intentions distinguishes intentions from desires: "Sometimes what people want and what they intend are different because they are not able to do what they want." It is further specified that the questions refer to intentions rather than desires. Thus, for example, women who are sterile are assigned a response of zero children intended, regardless of whether they would like to have (more) children. The number of children each woman intends to have is added to the number of children she has at the time of the survey in order to calculate her intended family size. In the Bongaarts framework, intended parity is measured as the average intended fertility of women age 20-24. This measure represents the desired family size of women at the start of their childbearing years; because fertility intentions have been stable over the past thirty years in the United States, the intentions of young women can be used to model current period fertility among women of all ages (Hagewen and Morgan 2005).

Decomposing differences in fertility

Figure 1 provides the first hints that intentions are the driving force behind religious fertility differences within the United States. This figure shows average intended and actual fertility by religiosity for different age groups of women in the 2002 NSFG. There is little difference in children ever born between very religious women and not religious women at age 18-24. However, at these ages women who report that religion is very important to them have higher intended fertility than other women, and at older ages more religious women have both higher intentions and higher numbers of children ever born. Among women age 40-44, completed fertility for women who report that religion is very important to them is 0.4 children higher than that among women for whom religion is only somewhat important and 0.8 children higher than women who are not religious.

Figure 1: Actual and intended total fertility, by importance of religion

These data are cross-sectional, and do not represent actual cohort behavior, but the hypothetical cohort depicted in this graph is suggestive. Further, since fertility intentions have been largely stable for several decades, actual cohort data looks very similar to that shown in Figure 1. (Quesnel-Vallée and Morgan 2003 show the evolution of intentions and behavior for an actual cohort, though they do not break down fertility by religiosity.) Note in Figure 1 that the intention-by-age (dashed) lines are roughly parallel, with differences between the very and somewhat important groups varying between 0.2 and 0.5, and differences between the very and not important groups ranging from 0.6 to 0.9 children. Thus the higher completed fertility of religious women may simply reflect their success at fulfilling higher childbearing intentions, and the other factors shown in equation 1 may not vary greatly across religious groups. Alternatively, the parameters inflating/deflating fertility in equation 1 may differ across religious groups but be largely offsetting, resulting in similar degrees of depression of intentions for all three groups.[4]

To explore further the link between intended and achieved fertility, we first calculated the period TFR for women in the three religiosity groups. Period-based total fertility rates (table 2) are similar to the completed fertility measures shown in figure 1; as expected, the most religious women have the highest fertility, followed by women for whom religion is somewhat important, with women for whom religion is not important having the lowest birth rates. Women experiencing the fertility rates observed among very religious women between 1997 and 2002 throughout their lifetime would have on average 2.3 children, half a child more than women for whom religion is not important.

Table 2: Wantedness and timing of births, by importance of religion

We then examined the *F* parameters from equation 1. Of the three parameters that might inflate observed fertility relative to intentions, (F_u , F_r, F_g), unwanted fertility is most likely to be important.[5] Past research suggests that religious women are less likely to use contraception or use less effective contraceptive methods, although effects vary by age and affiliation (Brewster et al. 1998; Goldscheider and Mosher 1991). Religious women may also be less likely to abort unintended pregnancies. We therefore expected that women for whom religion was very important would have higher levels of unwanted/unplanned fertility than other women. Table 2 shows the proportion of births in the past five years that were unwanted or unplanned for the three religiosity groups. Differences are modest and, contrary to our expectations, in the direction of higher unintended fertility among the *less* religious. Thus, there is no evidence for our initial expectation and no reason to believe that unintended fertility contributes to the observed higher fertility among more religious women.

Several factors (F_t , F_i, F_c) have been shown to deflate fertility behavior relative to intentions in international comparisons. Fertility postponement lowers the TFR and accounts for

a substantial portion of the fertility variation across developed countries. Simple tabulations of mean age at first birth by religiosity show that the women who reported religion was very important were slightly *older* at first birth than women in the not important group (table 2). As with unintended fertility, differences in the timing of fertility run contrary to expectations, in this case that postponement would be greater among less religious women.[6] Infecundity (F_i) represents shortfalls of fertility (vis-à-vis intentions) due to sub or infecundity. The impact of this factor should be positively associated with age at childbearing. Since there is little evidence that age at childbearing varies across these religiosity groups, F_i seems unimportant in accounting for differences too.

Downward revisions in intentions due to competition between childbearing and other activities, F_c, cannot be examined in this cross-sectional data set. Our expectation is that the more religious would be less likely to revise intentions downward because they are more traditional/family oriented. Under this hypothesis, the process of differential downward revisions would contribute to the religious differentials we document; the hypothetical (cross-sectional) cohort data in Figure 1 do show some widening of intended fertility differences with age.

Explaining differences in intended fertility

In the previous section, we argued that the higher fertility of women for whom religion is very important can be explained by their higher fertility intentions, rather than by differences in the achievement of fertility intentions. We next explore the association between religiosity and fertility intentions in order to determine whether this association can be explained by differences in socio-demographic characteristics or is part of a broader conservative family orientation.

Data and methods

Our analysis examines the relationship between religiosity and intended family size among 1360 women age 20-24 interviewed in the 2002 National Survey of Family Growth. We concentrate on women in their early twenties, who are in the early stages of family formation. These women are old enough to have developed ideas about what kind of family they would like to have, but are young enough so that these ideas reflect intentions and ideology rather than past behavior.

Intended family size is measured as described in the previous section. We control for background characteristics that we expect to be associated with both fertility intentions and religiosity: age, race/ethnicity, education, and family background. The young women in our sample may not yet have completed their education, so we measure education using two dichotomous variables, whether the respondent has a high school degree and whether she has ever attended college. We include in our analysis two measures of family background, whether the respondent lived with both biological parents at age 14 and the educational attainment of the respondent's mother.

We also control for whether the respondent has ever been married, since previous research has found that religious differences in fertility are partly due to differences in marriage timing (Mosher, Williams, and Johnson 1992). In addition, we control for current parity: Our analysis can be interpreted as modeling the number of additional children desired by women age 20-24. On average, women in our sample already have 25% of the children they intend; 19% of the women in the sample intend no additional children. Controlling for current parity accounts for the possibility that higher fertility intentions result from early childbearing. Including current parity may introduce endogeneity into the model if more religious women have children earlier

than other women. We tested models which did not include parity; results were the same for religion variables, although coefficients for some control variables (notably race and education) changed under this specification.

The 2002 NSFG includes a series of questions measuring the respondent's attitudes toward various aspects of family formation and sexuality. Respondents are asked whether they agree, strongly agree, disagree, or strongly disagree with each of a series of 13 statements. "Neither agree nor disagree" was not offered to respondents as an option, but was available as a response for respondents who insisted. The full text of the questions is shown in table 3, along with means for the whole sample and for each religiosity group. Variation in family attitudes by religiosity is as expected, with more religious women holding more conservative family values. It is interesting to note that the strength of this relationship varies across measures. For example, more than three times as many women for whom religion is very important believe that young people should not cohabit as women for whom religion is not important. Attitudes toward homosexuality also differ widely, with 74% of women in the not important group accepting same-sex relationships compared to only 29% of women in the very important group. Attitudes toward parenthood, on the other hand, show little variation by religion, with more than 90% of all groups agreeing that parenthood is worth the costs.

Table 3: Distribution of attitude variables

We include attitude variables in the model by constructing an additive index representing traditional family ideology. One point is added to the index for each conservative statement that the respondent agreed with, and one point is added for each permissive statement that the respondent disagreed with; means for the attitude index are also included in table 3. In exploratory analysis, we tested models using all attitude variables together, each attitude variable

separately, and different combinations of the attitude measures, including content-based subgroups (e.g. only gender attitudes, only marriage attitudes). Substantive conclusions from models using the additive index were almost identical to those from models using all attitude variables for the religion variables, the main interest here, and very similar for other variables. We used the constructed index variable in the final model for the sake of parsimony. Details of index construction and model selection are described in the Appendix.

We present results as a series of nested models. In Model 1, only measures of religiosity are included. We add socio-demographic characteristics in Model 2 and family attitudes in Model 3. All regressions are run using OLS regression with intended family size as the dependent variable. Given the distribution of intended family size, Poisson or negative binomial models might be technically more appropriate for this analysis. We found that our results were robust to the specification of the model, and chose to use linear regression for the convenience of interpretation of coefficients.

Results

Model 1 confirms that women for whom religion is important in daily life have higher fertility intentions (table 4). Compared to non-religious women, who intend two children on average, women for whom religion is somewhat important intend 0.31 additional children and women for whom religion is very important in daily life intend 0.69 additional children. The differences by religiosity are statistically significant at the 0.001 level. Additional tests (not shown) demonstrate that the difference between very religious and somewhat religious women is also statistically significant.

Table 4: Results from OLS regression of intended fertility on religiosity and other characteristics

In model 2, we add measures of socio-demographic characteristics to the model. The magnitudes of the religiosity measures are virtually unchanged from model 1: Compositional differences do not explain the higher intended fertility of religious women. In fact, within this sample of young women, few socio-demographic characteristics are related to fertility intentions -- only education has a statistically significant association with intended parity.

Model 3 incorporates a summary index measuring attitudes toward family formation and sexuality. Differences between religious women and women for whom religion is not important remain statistically significant in this model. However, the magnitudes of the differences are attenuated -- they are about half the size of the unadjusted coefficient for very religious women (0.34 vs. 0.69), and about two-thirds for somewhat religious women (0.24 vs. 0.31). In addition, the difference between very and somewhat religious women is no longer statistically significant once attitudes toward family formation are included in the model.

On average, a one-point increase in the traditional family attitudes index is associated with an increase in intended family size of 0.12 children. In exploratory analysis (described in the Appendix), we tested to see whether differences in expected fertility were primarily explained by some subset of the attitude measures. For example, some previous research has hypothesized that the higher fertility of religious women may be explained by more conservative attitudes about gender roles. We did not find that any one attitude or set of attitudes explained a large part of the relationship between fertility intentions and religion. Instead, we found that each additional attitude measure included in the regression increased the explanatory power of the model and attenuated the religion coefficients.

Discussion

Based on these results, we conclude that the family attitudes questions included in the NSFG act as a set of imperfect measures of a broad and diffuse traditional family orientation, rather than representing distinct dimensions of family values. Some of the attitude measures are explicitly pronatalist (parenting is worth it), while others are neutral with respect to fertility (same sex relationships are not acceptable). Some traditional family attitudes, such as disapproval of cohabitation and extramarital sexual activity, may even depress fertility among more religious women by limiting the contexts in which childbearing is accepted. The association between traditional family attitudes, religiosity, and higher intended family size is consistent across each of these attitude questions. The consistency of this association suggests that the relationship between fertility intentions and family values is not the result of behavioral intervening variables, but represents a conceptual linkage between family size and other aspects of family formation. This analysis cannot determine whether religion or family conservatism is the main causal factor behind the association -- it may be that women for whom religion is more important develop more conservative attitudes, or that women with more traditional family values are drawn to religion.

Even after adding measures of family values to our models, a large and statistically significant relationship between religiosity and fertility intentions remains. In additional models (results available from authors) we tested whether other aspects of religious belief might explain this relationship. Our primary independent variable, the importance of religion in the respondent's everyday life, is based on individual interpretation of religion and may not capture effects of religiosity that operate through church institutional structures or through the social influence of other church goers. These effects would presumably be strongest among frequent church-goers. We included measures of the frequency of religious attendance in addition to the

importance of religion and family values, and tested for interactions between attendance and importance variables. The coefficients for the attendance variables were small and not statistically significant, and the coefficients for other variables did not change when religious attendance was added to the model. Interaction terms were also not statistically significant. Attendance at religious services may be associated with higher fertility intentions, but this possible association is a component of the association between importance of religion and intended family size and does not explain additional variation.

Conclusions

Women who describe religion as "very important" have higher fertility than women for whom religion is "somewhat important" or "not important." We trace these fertility differentials to differences in fertility intentions; other proposed proximate mechanisms such as higher unintended fertility or earlier childbearing among religious women do not play a large role in explaining overall fertility differences. But why do the more religious want more children? A substantial portion of the difference is associated with differences in family ideology, including schemas about the importance of marriage and parenthood, the acceptability of non-marital sexual relations, and gender roles in families. Our results suggest that fertility differentials are part of a widespread association between religiosity and family behavior, rather than an expression of a specifically pro-natalist orientation associated with a particular religion.

The joint association between religiosity, fertility intentions, and family values reflects the connection between religion and family in the construction of personal identity. During the period under study, the association between religion and conservative family values is strong, visible, and vocal. Religious-based political organizations like the Christian Coalition and

Concerned Women for America advocate a return to Christian values; their agenda prominently features "pro-family" policies such as opposition to abortion and gay marriage and abstinence-only curricula in school sex-ed programs. Outside of the explicitly political arena, movements such as the Promise Keepers (encouraging Christian men to become involved husbands and fathers) and True Love Waits (promoting abstinence until marriage among Christian teenagers) reinforce the association between religion and traditional family orientation. These organizations associations are largely led by conservative Protestants, but attract mainstream Protestant and Catholic members as well. The visibility of religion and "family values" in American public and political discourse may increase the salience of both religion and fertility as elements of personal identity in the United States.

Religious and family values are conjoined by the "culture wars" of the last few decades. There are numerous schemas at play in American society and many are widely shared, suggesting that "culture war" is less apt than terms like cultural "battles" or "skirmishes." Nevertheless, these skirmishes have received great media attention and constitute historical "events" that have impacted the social landscape and individual identities. This social history produces the new structure (i.e., patterned behavior) observed. The higher fertility of the more religious/conservative religious flows from these forces and helps to perpetuate them. The longevity of this new structure depends upon the micro-macro dynamics at the intersection of contemporary ideology, politics, religion and the family. The outcomes will be visible in institutional change, in important sources of contemporary identity, and in behavior such as fertility.

Appendix: Choosing attitude measures to include in regression

The NSFG asks 13 questions about attitudes toward family and sexual behavior. We tested several possible combinations of these attitudes in the process of selecting a final model. The primary goal of this analysis is to find variables that mediate the relationship between religiosity and fertility intentions. We therefore based model selection on which variables reduced the size of the religion coefficients the most, with the statistical significance of the individual attitude measures, model R-squared, and parsimony as secondary considerations.

Table A-1 shows R-squared, religion coefficients, and coefficients for the attitude measures in 20 different models. Model 1 from Table 4, a bivariate model including only religion terms, is included for reference. Thirteen models test each attitude variable in turn, one at a time. An additive index including all attitude variables is shown in one model, and four models include various subsets of attitude variables. The best models in terms of reducing the religion coefficients are the model with all attitude variables and the model with the attitude index. Both models produce large and statistically significant coefficients for attitude variables as well. R-squared is slightly better when all attitude measures are included in the model than when the attitude index is used; we chose the more parsimonious index variable for our final model.

The index variable tested is a simple additive index with one point assigned for agreeing with a conservative statement and one point for disagreeing with a progressive statement. Conservative statements are:

> It is better for a person to get married than to go through life being single.
> The rewards of being a parent are worth it, despite the cost and the work it takes.
> A young couple should not live together unless they are married.
> It is much better for everyone if the man earns the main living and the woman takes care of the home and family.

It is more important for a man to spend a lot of time with his family than to be successful at his career.

The statement "It is more important for a man to spend a lot of time with his family than to be successful at his career" could be labeled either conservative or progressive: It prioritizes family over other concerns, but implies rejection of a traditional gender role orientation. We included this statement with conservative values because it was positively associated with both fertility intentions and the importance of religion. Results are similar when this variable is excluded from the index.

Progressive statements include:

Divorce is usually the best solution when a couple can't seem to work out their marriage problems.
Sexual relations between two adults of the same sex are all right.
Any sexual act between two consenting adults is all right.
It is all right for unmarried 18 year olds to have sexual intercourse if they have strong affection for each other.
It is all right for unmarried 16 year olds to have sexual intercourse if they have strong affection for each other.
It is okay for an unmarried female to have a child.
Gay or lesbian adults should have the right to adopt children.
A working mother can establish just as warm and secure a relationship with her children as a mother who does not work.

We also tested models for which we chose variables for inclusion in the model based on content. For example, we tested models using only variables related to gender ideology, only the importance of parenthood, and only the importance of marriage. These models did not match the index variable model on either reduction in the religiosity coefficients or overall model fit. Finally, we tried to create a more structured index variable using principal components analysis, but the attitude measures did not produce a meaningful set of components, so we do not include these results here. The attitude questions included on the NSFG seem to measure a multi-

dimensional outlook on family and sexual behavior; the entirety of this outlook, rather than a single facet, contributes to explaining the relationship between religiosity and fertility intentions.

NOTES

[1]Earlier versions of the survey were conducted in 1973, 1976, 1982, 1988, and 1995; although each survey has distinctive features and the samples are independent, the questionnaires are designed to maximize comparability over time.

[2]As has become standard, we measure births as unwanted if the mother reported intending no more children at the time of a particular pregnancy (that subsequently ended in a live birth).

[3]Fertility timing is measured by mean age at birth and the mean ages for births of different parities.

[4]For instance, the more religious might have lower unwanted fertility rates (F_u) but postpone childbearing less (F_t) that the less religious. If the product of these two factors approximates 1.0, then together they have no overall impact on the TFR. Our initial expectation was that differences in the *F* parameters would accumulate so as to be largely responsible for religious differences in fertility behavior. This is the case for cross-national differences (see Morgan 2003; Quesnel-Vallee and Morgan 2003).

[5]The F values need to be both large and substantially different across groups in order to produce religious differences. F_r and F_g are small in the U.S. context; even if they varied by a factor of 2 or 3 they would not impact religious differences greatly (see Morgan and Hagewen 2005).

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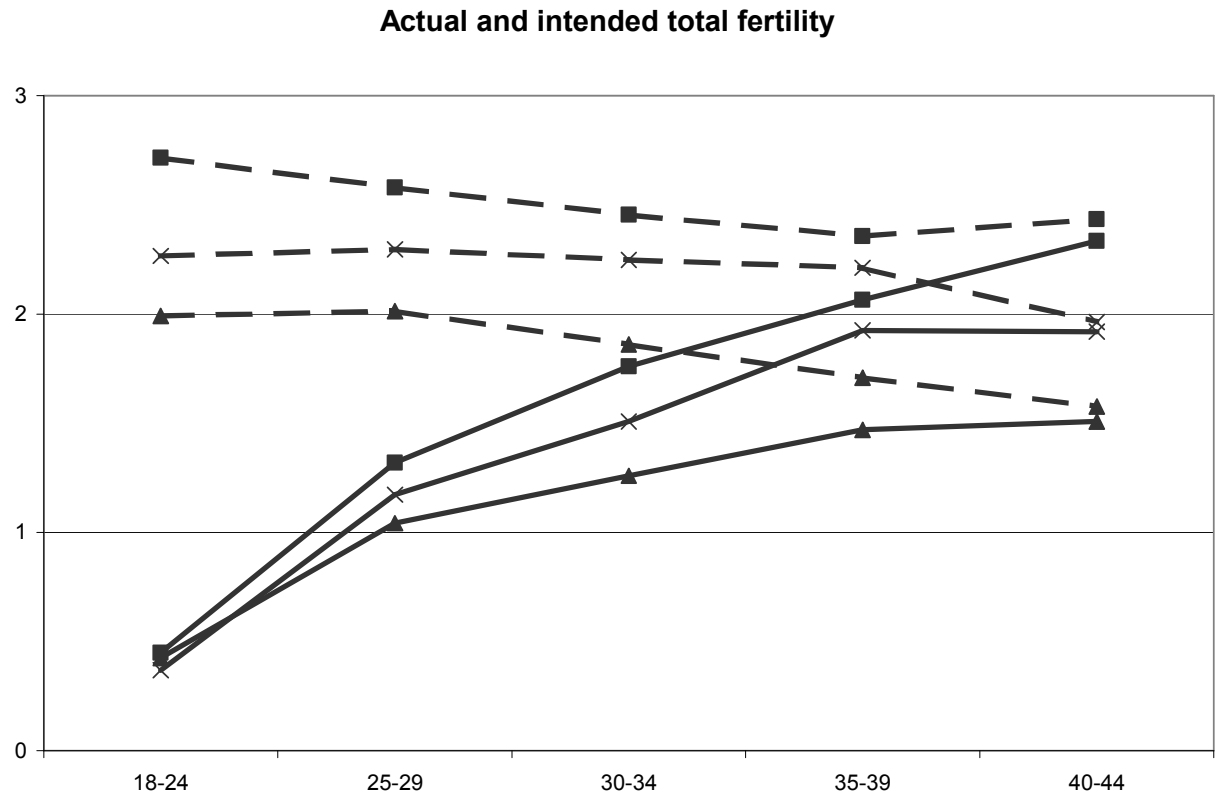
Figure 1: Actual and intended total fertility, by importance of religion



Dashed lines=mean intended fertility; solid lines=mean children ever born. Square=religion very important; x=religion somewhat important; triangle=religion not important/no religion.
Data: 2002 NSFG. Means weighted using sample weights.

Table 1: Characteristics associated with religiosity

	Proportion reporting religion is:		
	very important	somewhat important	not important/ no religion
All women	50	31	19
By religious affiliation			
No religion	0	1	99
Catholic	49	43	8
Protestant	65	31	4
Baptist/Southern Baptist	70	28	2
Methodist, Lutheran, Presbyterian, Episcopal, Church of Christ	49	43	8
Fundamentalist Protestant	80	19	1
Other	40	45	16
By age group			
15-19	43	38	19
20-24	45	32	24
25-29	46	31	22
30-34	49	30	21
35-39	56	27	16
40-44	58	29	13
By racial/ethnic group			
African American	70	19	11
Non-Hispanic White	44	34	22
Hispanic	55	31	14

	Characteristics of women			
	By importance of religion:			
	very	somewhat	not	all women
Percent who attend church at least once/week	60	12	2	34
Average children ever born	1.48	1.15	0.95	1.28

Data: 2002 NSFG. Means and proportions weighted using sample weights.

Table 2: Wantedness and timing of births, by importance of religion

	By importance of religion to mother:			
	Very important	Somewhat important	Not important/ no religion	All women
Total fertility rate (children/woman)	2.3	2.1	1.8	2.2
Proportion of births unwanted	0.13	0.13	0.20	0.14
Mean age at first birth (years)	25.6	25.5	25.3	25.5
Mean age at second birth (years)	28.2	27.6	27.0	27.9

Data: 2002 NSFG, births to women age 15-39 between January 1997 and December 2001. Means and proportions weighted using sample weights.

Table 3: Distribution of attitude variables

	By importance of religion: very	somewhat	not	All women
	Percent agreeing			
Conservative attitudes				
It is better for a person to get married than to go through life being single.	60	46	41	51
The rewards of being a parent are worth it, despite the cost and the work it takes.	96	95	91	94
A young couple should not live together unless they are married.	46	19	14	30
It is much better for everyone if the man earns the main living and the woman takes care of the home and family.	39	24	17	29
It is more important for a man to spend a lot of time with his family than to be successful at his career.	73	65	68	69
Progressive attitudes				
Divorce is usually the best solution when a couple can't seem to work out their marriage problems.	33	44	49	40
Sexual relations between two adults of the same sex are all right.	29	57	74	49
Any sexual act between two consenting adults is all right.	64	87	87	77
It is all right for unmarried 18 year olds to have sexual intercourse if they have strong affection for each other.	46	70	79	62
It is all right for unmarried 16 year olds to have sexual intercourse if they have strong affection for each other.	17	20	26	18
It is okay for an unmarried female to have a child.	63	84	89	76
Gay or lesbian adults should have the right to adopt children.	43	70	75	60
A working mother can establish just as warm and secure a relationship with her children as a mother who does not work.	77	85	83	81
	Mean value			
Conservative attitude index	7.2	5.1	4.5	5.9

Data: 2002 NSFG, analytic sample: women age 20-24 with no missing values on attitude questions or importance of religion, N=1354. Unweighted percents and means.

Table 4: Results from OLS regression of intended fertility on religiosity and other characteristics

	Model 1			Model 2			Model 3		
R squared	0.03			0.11			0.15		
N	1354			1354			1354		
	Coeff.	SE		Coeff.	SE		Coeff.	SE	
Intercept	2.01	0.09	***	2.15	0.69	***	1.48	0.69	
Importance of religion in everyday life (omitted=not important/no religion)									
Very important	0.69	0.11	***	0.67	0.11	***	0.34	0.11	**
Somewhat important	0.31	0.11	**	0.31	0.11	**	0.24	0.11	*
Age (years)				-0.03	0.03		-0.02	0.03	
Race/ethnicity (omitted=white non-Hispanic)									
African American				-0.17	0.12		-0.12	0.12	
Hispanic				-0.05	0.11		0.00	0.11	
Respondent's education (omitted=no high school degree)									
High school diploma or GED				-0.21	0.12		-0.15	0.12	
Attended college				0.28	0.10	**	0.26	0.10	*
Lived in intact family at age 14				0.08	0.09		0.02	0.09	
Mother had high school degree				0.16	0.11		0.20	0.11	*
Ever married				0.16	0.10		0.01	0.10	
Number of children ever born				0.49	0.05	***	0.49	0.05	***
Traditional family attitude index							0.12	0.02	***

Notes: * p < .05; ** p < .01; *** p < .001 (two tailed tests). Data are from the 2002 National Survey of Family Growth. Sample: women age 20-24 with no missing values on attitude questions or importance of religion, N=1354.

Table A-1: Selected coefficients and fit statistics for models with different combinations of attitude measures, results from OLS regression of intended fertility on religiosity and other characteristics

	R squared	Coefficient: religion very important	Coefficient: religion somewhat important	Coefficient: attitude variable
Table 4, Model 1 (only religion variables)	0.03	0.69	0.31	
	Each attitude question in model alone			
Better to get married than stay single	0.13	0.61	0.30	0.37
Divorce best solution when can't work out marriage problems	0.12	0.64	0.30	-0.17
Same sex relations between two adults are ok	0.12	0.60	0.29	*-0.15*
Any sexual act between two consenting adults is ok	0.12	0.60	0.31	-0.30
Ok for unmarried 18 year olds to have sex	0.12	0.58	0.29	-0.29
Ok for unmarried 16 year olds to have sex	0.11	0.66	0.31	*-0.09*
Rewards of being a parent are worth it	0.13	0.63	0.28	0.82
Ok for unmarried female to have a child	0.12	0.58	0.29	-0.40
Gay adults should have right to adopt	0.12	0.62	0.31	-0.18
Not ok for young couple to live together	0.13	0.51	0.29	0.54
Working mom can establish secure relationship with child	0.12	0.65	0.32	-0.37
Better for all if man earns main living	0.13	0.58	0.28	0.43
More important for man to spend time with family than have success in career	0.11	0.66	0.31	*0.12*

Cont.

Table A-1, cont.

	R squared	Coefficient: religion very important	Coefficient: religion somewhat important	Coefficient: attitude variable
	Groups of attitude questions in model			
Additive index	0.15	0.34	0.24	
All attitude variables	0.17	0.34	0.24	
Only gender attitudes	0.13	0.57	0.30	
Only marriage attitudes	0.13	0.58	0.28	
Only homosexuality attitudes	0.12	0.59	0.29	
Only parenthood attitudes	0.13	0.63	0.28	

Notes: Data are from the 2002 National Survey of Family Growth. Sample: women age 20-24 with no missing values on attitude questions or importance of religion, N=1354. All models include socio-demographic controls as described in text and listed in Table 4. All coefficients are statistically significant, $p<0.05$, except for *coefficients in italics* not statistically different from zero. Gender attitudes=working mom can establish secure relationship with child, better if man earns main living. Marriage attitudes=better to get married than stay single, divorce best solution. Homosexuality attitudes=same sex relations ok, gay adults should have right to adopt. Parenthood attitudes=rewards of being a parent are worth it.