Christian - Muslim Fertility Differences in Poor Settings in Greater Beirut, Lebanon

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Abstract

In this paper, we examine differentials in fertility between Christians and Muslims in three poor communities in Greater Beirut, Lebanon using data from the 2002 – 2003 Urban Health Survey. Results from the adjusted parity progression ratios show that young Christian and Muslim women are significantly less likely to progress to the next parity than their older counterparts. However, fertility decline among Christians is much more significant. The onset of the decline in Muslim fertility – especially at parities three, four and five – seems to coincide with the end of the civil war in the early 1990's, while that of Christians is at least 10 years earlier. The differences in marital fertility by religious affiliation persist after controlling for differences in socio-economic conditions, religiosity, and cultural capital. We discuss context-specific explanations of the religious fertility differences taking into account Lebanon's social, economic, historic and political context.

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Introduction

Differential fertility has been of interest to demographers for a long time (Westoff, 1954; El-Badry, 1967). This is especially the case for differences in fertility by religious affiliation. A number of studies examined the higher fertility of Hutterites, Catholics, Evangelical Protestants, Mormons, Ultra-orthodox Jews, and Muslims. There have also been recent studies about whether religiosity per se affects reproductive behavior in Western countries (Frejka and Westoff, 2008; Westoff and Frejka, 2007). Unlike other aspects of differential fertility (by ethnicity, education, income, occupation, and rural/urban), religious affiliation is sometimes argued to have both direct and indirect effects on fertility. Its direct effects might operate through doctrines that impose restrictions on contraceptive use, abortion, pre-marital sex and out-of-wedlock childbearing. Religion is also sometimes argued to have an indirect effect through doctrines that emphasize traditional gender and family values that are conducive to high fertility (Westoff, 1959 as cited in Chamie, 1981).

The effect of religion on fertility has been especially applied to Muslim fertility. While a number of countries where Muslims are the majority have experienced dramatic fertility decline (Obermeyer, 1994), Muslims tend to have more children than their non-Muslim counterparts (Dharmalingam and Morgan, 2004; El-Badry, 1967; Jeffery and Jeffery, 1997; Knodel et al. 1999; Morgan et al., 2002; Westoff and Frejka, 2007). In addition to their higher fertility levels, Muslims tend to desire more children and are less likely to use contraception (Morgan et al., 2002). Although this pattern is not context-specific (Dharmalingam and

Morgan, 2004), there does not seem to be conclusive 'grand' explanations for Muslim's higher fertility vis-a-vie non-Muslims. A number of demographers advocated context-specific explanations (Jeffery and Jeffery, 1997; Knodel et al. 1999; Obermeyer, 1992).

In this paper, we examine Christian – Muslim fertility differences in three poor communities in Greater Beirut, Lebanon. Previous studies using data from the 1970's showed that reproductive behaviour varied greatly among different religious groups in Lebanon (Chamie 1981, Zurayk, 1979). Based on the 1971 National Fertility and Family Planning Survey of Lebanon, Chamie (1981) found that non-Catholic Christians had the lowest fertility among all age groups followed by Catholics, Druze, and Sunni Muslims, while Shia Muslims had the highest fertility. These fertility differentials were not a function of differences in socio-economic conditions. However, they were much more salient at low levels of woman's education than at higher levels (Chamie, 1981).

The population size of each of the main religious sects is a very sensitive political topic in Lebanon, and successive governments have refrained from undertaking censuses[1] out of fear of igniting political debates about the electoral representation of each sect[2]. There are limited reliable data on demographic trends and patterns in Lebanon, and the ones that exist often purposely lack information on religious affiliation[3]. We are not aware of any study that examined religious differentials in fertility in Lebanon since Chamie's 1981 (based on data from 1971). The three settings used in this study are poor suburban communities that surround the capital, Beirut. While they are not representative of all communities in Lebanon, and

[1] The last official census was undertaken in 1932 during the French mandate.
[2] Religious affiliation in Lebanon has profound implications at the individual and group levels. High-ranking officials such as the President, Prime Minister, House Speaker, members of government, members of parliament, army general…etc are elected or appointed based on religious affiliation.
[3] Differential fertility (as well as differential out-migration) is often a topic in the conversations in Lebanon. However, such discussions mostly take place between members of the same religious sect rather than between members of different religious affiliations.

slums usually have higher fertility than the national average (Montgomery et al. 2003), they provide an important insight about Christian – Muslim fertility differences in poor urban areas in Beirut.

We examine adjusted parity progression ratios by age and time period for Christians and Muslims and specifically test hypothesis that differences in 'religiosity' and 'cultural capital' explain religious fertility differences in Lebanon. We define 'religiosity' in terms of adherence to the religious practice and holding traditional views regarding gender and the family (see Frejka and Westoff, 2008 and Westoff and Frejka, 2007 for studies on the effect of religiousness on fertility in Western countries). Cultural capital indicates women's participation and interest in non-traditional cultural and leisure activities which reflects elements of non-traditional lifestyle.

Hypotheses of Fertility Differentials by Religious Affiliation

Various hypotheses are proposed to explain the relationship between religious affiliation and fertility: These include the 'characteristics' hypothesis, the 'particularized theology' hypothesis, the 'minority group status' hypothesis, and the 'interaction' hypothesis. According to the 'characteristics' (or 'assimilationist') hypothesis, religious differences in fertility are primarily due to differences in demographic, social and economic characteristics between religious groups (Chamie, 1981; Goldscheider, 1971; Jeffery and Jeffery, 1997). "[R]eligious group membership *per se* is not significant but rather the social, demographic, and economic characteristics that religious group membership connotes determine fertility levels, trends, and differentials within religious groups" (Goldscheider, 1971: 273). However, a number of studies tested the 'characteristics' hypothesis and found that religious differences

in fertility persisted even after controlling for demographic and socio-economic conditions (Chamie 1981; Morgan et al. 2002).

Unlike the 'characteristics' hypothesis, the 'particularized theology' hypothesis argues that religious differentials in fertility are due to inherent differences in actual religious doctrine. Members of religions that do not have a strong stance regarding contraception and family size are expected to have lower fertility than members of religions which prohibit the use of birth control and place a high moral value on procreation, all else being constant (Chamie, 1981). However, Chamie (1981) found that the pattern of religious differences in fertility in Lebanon was inconsistent with that expected based on the official doctrines of the religions.

In his 1986 article about 'routes to low mortality in poor countries', Caldwell attributed Muslims' unfavorable demographic outcomes to the patriarchal nature of Islam and the subordinate position that Muslim women occupy. Obermeyer (1992: 34) criticized the approach that sees a destructive association between the doctrines of Islam, Muslim women, and demographic behavior. She argued that the 'fateful triangle' model – as she described it – is inappropriate because it ignores the inherent heterogeneity of various Muslim groups and the lack of unified or consistent interpretations of Islamic doctrines. Obermeyer proposed a model that takes into account the political context of fertility. Using various measures of women's status, Ghuman (2003) and Morgan et el. (2002) did not find empirical support for the argument that Muslim women's low autonomy explain their higher fertility and infant and child mortality vis-a-vie their non-Muslim counterparts.

The '*minority group status*' hypothesis states that the social, economic and political context is essential to understanding religious fertility differentials. Members of a religious (or

ethnic) minority[4] have little incentive to control their fertility[5] in settings where they feel that their presence is threatened (Chamie, 1981). Kennedy (1973) argued that a minority group will have higher fertility if the group is cohesive and relatively large in numbers, believes that larger numbers would be conducive to their increased political influence and perceives that the group has lower levels of upward social mobility than the other group(s). Even though the minority status has an independent effect on fertility in some settings, such effect is less significant than that of other factors such as place of residence or religion (Kennedy, 1973). Morgan et al. (2002) offered the 'minority status' hypothesis as a post hoc explanation of Muslims' higher fertility than non-Muslims in South and Southeast Asia given that the Muslim – non-Muslim fertility differentials persisted after controlling for socio-economic and woman's autonomy measures.

In his study about religion and fertility in Lebanon, Chamie (1981) dismissed the 'minority status' hypothesis as irrelevant to the Lebanese context. Unsatisfied with the three hypotheses – 'characteristics', 'particularized theology', and 'minority status' – Chamie proposed the '*interaction*' hypothesis to explain religious differences in fertility. He argued that such differentials are contingent upon the interaction between two conditions: (1) each religion's official doctrine as well as its local teachings regarding current moral values and (2) the socioeconomic levels of the different religious groups. His thesis is consistent with evidence regarding 1971 religious differences in Lebanon in which differentials by religious

4 Traditionally, the term 'minority' referred to a group's number of members relative to others groups. However, the definition of the term has recently widened to include groups that are not part of the political and economic establishment even though they may be the numerical majority as for example, blacks in South Africa (Bouvier and Rao, 1975 as cited in Chamie, 1981).

5 However, in certain situations – such as acculturation within the dominant social frame and achieving higher social and economic status and the absence of prohibitions against contraceptive use – the fertility of the minority group might decline below that of the majority (Goldscheider, 1971).

affiliation declined with the increase in socio-economic status. Chamie also applied the 'interaction' hypothesis to other settings.

Knodel *et al*. (1999: 149) examined religious differences in attitudes and behaviors between Muslims and Buddhists in Thailand and found that, even when combined, the major four hypotheses in the literature - 'characteristics', 'particularized theology', 'minority group status', and 'interaction' – can only partially explain the "complex and context-specific relationship" between religion and reproduction.

In this paper, we investigate the relationship between religion and fertility after more than three decades of Chamie's study in which he found that religious fertility differences in Lebanon are the largest at low SES levels. We use data from the 2002-2003 Urban Health Survey to study Christian – Muslim fertility differences in three poor urban settings. We examine how the trend and pattern of fertility decline differ between Christians and Muslims; and the extent to which demographic and socio-economic factors as well as 'religiosity' and 'cultural capital' measures explain the fertility differences between Christians and Muslims. We also suggest other potential – context specific – explanations of the fertility differences by religious affiliation in Lebanon.

Data & Methodology

Data

We use data from the Urban Health Study, a population-based survey that examined health issues related to adolescents, women and the elderly in three low-income communities surrounding the capital of Lebanon, Beirut. The study was conducted between 2002 and 2003 and included qualitative and quantitative components. The three low income areas – Hay el

Sollom (Muslim Lebanese), Naba'a (about 80% Christian Lebanese), and Burj el-Barajneh refugee camp (Muslim Palestinians) – were purposefully chosen based on overall poverty level and lack of infrastructure, the presence of rural or displaced populations in each of the three communities and the ease of sampling. The study targeted individuals who are residing in housing units within the boundaries of the three communities. While individuals were interviewed regardless of their residency status, the study excluded temporary workers who were residing in shanks or abandoned buildings and institutional populations (AUB Center for Research on Population and Health, 2006; Khawaja *et al.*, 2007).

A sampling frame was specifically constructed for each of the communities such that area maps were first used to provide a quick count for all the housing units. Then areas were divided into sampling segment units (PSUs), each of which consists of approximately 100 housing unit, and a sample of the PSUs was selected from each community such that the probability of selection is proportional to the population size. Finally, a sample of households was randomly drawn from the household list of each of the sampling segment units. In total, 2797 households were selected. The study consisted of three phases. A qualitative study was conducted in phase I which explored the social context of the three communities. Phase II included a household questionnaire which was completed by face-to-face interviews between May 3rd and July 25th of 2002. Phase III[6] included interviews with ever-married women aged 15 – 59 years who were residents of the sampled households. This phase of the Urban Health Study was completed between December 2nd and May 2nd of 2003. The response rate was 88.3% for the household questionnaire and 77.8% for the ever-married women questionnaire (Khawaja *et al.*, 2007). Response rate was higher in Burj el-Barajneh (97.7%) and slightly

[6] Phase III also included two other questionnaires (adolescent questionnaire and elderly questionnaire)

lower in Hay el Sollom (86.5%) and Naba'a (83.4%) (AUB Center for Research on Population and Health, 2006; Khawaja *et al.*, 2007).

The study communities

The pace of urbanization in Lebanon has been very rapid which along with poverty, migration from rural areas, limited government control (especially during the civil war) and limited economic opportunities outside Beirut led to the rapid growth of improvised, poorly-planned and very crowded and congested communities around Beirut. The civil war which started in 1975 lasted 15 years, and it ended after the signing of the 1989 Taef Accord which regulated the distribution of political power among different fighting factions and sects and gave Syria a prominent role in post-war Lebanon. About six years after the end of the war, around 10% of the Lebanese population resided in Beirut compared to 22% residing in the suburbs of Beirut. In total, almost a third of the population lived in Beirut and its suburbs (Lebanon's Central Administration of Statistics, 1998).

The three communities in this study have large numbers of displaced populations; however, their residents have different places of origins. Hey el Sellom, a homogenous community located in the southern suburb, grew out of poor rural migrants from the South and Beka'a who were fleeing Israel invasions and occupation and in search of better economic opportunities. Most of the residents still maintain close ties with their areas of origin and visit frequently on the weekends or during the summer. Construction in the neighborhood is haphazard and to a large extent illegal. Burj Barajneh also a homogenous community located in the southern suburb, is a large refugee camp for Palestinians who were displaced after the creation of Israel. The camp expanded in size during the last fifty years

especially that Palestinian refugees do not have the right to own property in Lebanon (AUB Center for Research on Population and Health, 2006).

Naba'a, located in the eastern suburb, was initially inhabited by Shia Muslims who migrated from rural areas in Bekaa and South Lebanon as well as some Armenians (who fled to Lebanon after the Armenian genocide in 1915). During the civil war, Muslims fled Naba'a to other areas, while Christians displaced from other areas moved in to Naba'a due to the intense fighting and the re-distribution of the population (especially in Beirut and Mount Lebanon) along sectarian lines. While some of the original Shia residents returned to Naba'a after the end of the war, the community still has large numbers of displaced Christians. Naba'a has some religious diversity, but the residents are mostly Christians (AUB Center for Research on Population and Health, 2006).

Variables used in the analyses

In the regression analyses, we control for a number of ever-married women's characteristics. They include demographic, socio-economic, religiosity (self-reported measures as well as attitudes regarding gender and the family), and cultural capital index.

Demographic variables: These include age, age at first marriage, marital status and number of times married. Marital status originally included four categories: married, widowed, divorced, and separated. Since 93.4% of the respondents reported that they were married at the time of the survey, the variable "marital status" was collapsed into two categories: "married" and "unmarried" with "unmarried" as the reference category. About 97% of all respondents reported to have been married only once. The variable "number of

times married" was recoded into two categories: married once and married more than once with the former as the reference category.

Socio-economic status variables: The three settings of this study are low income communities. Respondents were asked to self-rate their economic status with four possible options: 'well-off', 'not rich not manage', 'neither rich nor poor' and 'poor'. About 50% of the respondents reported that they are poor and less than 0.2% reported they are well-off. We do not use self-rated economic status in the analyses because the variable was measured only at the time of the survey. However, we control for woman's years of education and work status, her father's and mother's educational levels. The parents' education variables refer to "highest educational level successfully completed', and it includes the following categories: 'illiterate', 'can read and write', 'elementary education', 'intermediate', 'secondary', and 'university'. Because of low frequency, the categories 'intermediate', 'secondary', and 'university' were collapsed into one category 'post-elementary' education. In the analyses, 'illiterate' was used as the reference category. Women in the study were asked whether they were engaged in paid work the week before the survey was conducted. Women who did not report having paid work were additionally asked whether they ever had a paying job. We created a new variable 'employment status' from the above two survey questions. The variable has the following categories: never had a paid work; previously had a paid work, and currently has a paid work. Women who never had a paid work were used as the reference category.

Religiosity: We define 'religiosity' as adherence to religious practices and holding traditional gender and family views. We use two variables to measure religious practices: "frequency of prayer" and "self-rated religiosity". The categories of the variable 'how much

do you pray' were reduced from eight into three due to the small number of cases of some categories. The categories used in the analyses regarding frequency of prayer are ‘several times per week or less’ (used as the reference category), ‘almost daily’, and ‘several times per day’. The question about self-rated religiosity has five categories: ‘not religious at all’, ‘not religious’, ‘somewhat religious’, ‘religious’ and ‘very religious’. About 1% of the respondents described themselves as ‘not religious at all’ or ‘not religious’, so the variable was recoded into three categories: ‘somewhat religious or less’ (used as the reference category), ‘religious’ and ‘very religious’.

We also included four attitude measures regarding gender and family issues. A higher score indicates more traditional/ gender conservative values. The variable 'attitudes towards women's freedom of movement' indicates whether the respondent thinks that a woman should be accompanied by someone/ should not be allowed to go (coded 1) or should go alone (coded 0) to a local market, to a physician, to visit relatives in a different country, to go to school in the same neighborhood, to go to school outside the neighborhood, to go out at night within the neighborhood and to go out at night outside the neighborhood. The variable ‘involvement in society’ measures woman's attitude towards women's involvement in society. The variable indicates whether the respondent is neutral/against (coded 1) or supports (coded 0) women’s freedom to work outside the home, to take higher education, to drive a car, to run a business, to be a member of a municipal council, to live alone in her own apartment and to drive a bus.

Furthermore, 'attitudes towards household and childcare as women's responsibility' are examined. This variable indicates whether the respondent thinks that housework and taking care of children are the couple’s/ husband’s responsibility (coded 0) or the wife’s

responsibility (coded 1). Finally, the variable 'choosing husband' indicates whether the decision to choose the girl's husband is mainly that of the girl's family/ the girl's father (coded 1) or the girl herself (coded 0).

Decision-making: The variable, women's involvement in household decision making index' indicates whether the husband is the final decision-maker (coded 1) or whether the woman solely or in conjunction with the husband (coded 0) gets to decide on the following: buying a chair or table, shopping, taking the kids to the physician, choosing the place of entertainment, and choosing the TV program. A higher score on this variable indicates that the husband tend to be the sole decision-maker in the household.

Cultural capital: The variable 'cultural capital index' measures whether or not the woman engages in non-traditional leisure or cultural activities such as reading newspapers, books, poems or plays; whether she plays a musical instrument or participated in a musical, play or dance or went to an expedition of a book or of art or attended a lecture or public speech or volunteered in a cultural or artistic organization and made art crafts like sculpture, painting or canvas during the previous year. A higher value indicates greater cultural capital. It also suggests greater exposure to non-traditional lifestyle and ways of living and is in contrast with the traditional way of spending leisure time in Lebanon – mostly socializing with family, relatives and neighbors or watching TV with the family members.

Methodology

We estimate age-specific fertility rate, total fertility rate and total marital fertility rate by religious affiliation. We also analyze proportion of women with n^{th} births who move to have $(n+1)^{th}$ births within 60 months as total fertility rate is sensitive to changes in age at first

birth and birth intervals. This method, which is called B_{60}, is used for women with incomplete fertility instead of cohort-based parity progression ratios. As parity progression ratios, B_{60} indicates whether fertility decline is due to changes in timing of first birth, longer birth intervals or reductions in high-order parities. B_{60} is calculated by age group from information about women's age at each birth order. Because few women are exposed to the risk of having a higher birth order, the calculations of B_{60} for high birth order is increasingly sensitive to sampling error especially among younger cohorts. While this might differ by sample size and level of fertility, progression from first to second birth order is calculated for 20-24 years old, while progressions up to birth order of five are usually calculated for women aged 30 years and over (Arnaldo, 2004; Brass, 1996).

Comparing progression from n^{th} births to $(n+1)^{th}$ births across different age groups is an indicator of fertility change. B_{60}, however, is sensitive to two types of bias: censoring and selectivity. The censoring of birth histories does not have much effect on the estimation of B_{60} because few women move to the next parity after more than five years. The estimate of B_{60} for younger cohorts is sensitive to selectivity which is caused by the truncation of birth histories. It also increasingly applies to young women who are rapid reproducers. As a result, B_{60} tends to be higher than actual parity progression ratios for younger women. Brass and Juarez (1983) proposed correcting for this bias by calculating a series of indices between pairs of adjusted five year age groups. B_{60} values for the older group is truncated by five years so that it is comparable to B_{60} calculated for the younger group (Brass, 1996).

We also use OLS regression analyses to test several hypotheses in order to explain differences in average number of children ever born between Christians and Muslims. We run the following models that examine the extent to which the fertility differences by religious

affiliation could be explained by demographic (Model 2), socio-economic and work variables (Models 3 & 4), religiosity and cultural capital (Models 5 & 6). Below is a list of the models and the independent variables included.

- Model 1: religion & age.
- Model 2 (adding other demographic characteristics): variables in model 1 in addition to age at first marriage, marital status, and number of times married.
- Model 3 (adding SES variables): variables in model 2 in addition to woman's years of education, father's education, and mother's education.
- Model 4 (adding work variable): variables in model 3 in addition to woman's participation in paid work force.
- Model 5 (adding two 'religiosity' variables): variables in model 4 in addition to frequency of prayer and self-rated religiosity.
- Model 6 (adding attitude, decision-making and cultural capital variables): variables in model 5 in addition to the attitude indices regarding family and gender issues, decision-making index, and cultural capital index.

Results

Figures 1 and 2 show age-specific fertility rate, total fertility rate and total marital fertility rate using births reported up to five years before the survey. The gap in age-specific fertility rate between Christians and Muslims is much more substantial at younger age groups due to greater rate of singlehood and later age at first marriage among Christians than Muslims (see appendix 1). The total fertility rate is about two children higher for Muslim women, and the gap in total marital fertility rate is also substantial. Surprisingly, the total

fertility rate of Christians in this poor urban area is below replacement level, while that of Muslims is considerably higher.

Tables 1a and 1b show the adjusted parity progression ratios estimated by religious affiliation. The progression ratios are high at low birth orders, and they decline at moderate-high birth orders. The decline of high birth orders among women older than 35 years is most substantial among Christian women who rarely proceed to have more than five births. In contrast, progression ratios from fifth to sixth birth, or sixth to seventh birth, or even seventh to eighth birth is generally between 64% and 81% for Muslim women (exception is progression from 6^{th} to 7^{th} birth among women aged 35-39 years). Examining progression ratios for different age cohorts of women shows a decreasing trend in progression to the next parity. This decline among younger age groups is most visible about Christian women; however, it is also apparent for young Muslim women.

The progression ratios from first to second birth for women aged 20 -24 years at the time of the survey is calculated only for Muslims as they tend to marry and bear their first child earlier than their Christian counterparts. The onset of fertility starts earlier for Muslims, and it explains part of the fertility differences between the two groups. Parity progression ratios from first to second birth for other age groups is over 90% for both Muslim and Christian women indicating that the overwhelming majority of married women proceed to have a second birth within five years of having had their first. While progression from first to second birth is only slightly higher for Muslims, it seems that the difference between the two groups is larger for the younger cohorts (25-29 years) than for other age groups.

Progression ratio from second to third births shows that parity reduction started earlier for the Christians. Among women aged 35 – 39 years, less than 80% of Christian women with

two births proceed to having their third birth within five years compared to over 95% among Muslim women. The percentage dropped to about 67% among Christian women aged 25 – 34 years compared to about 90% among their Muslim counterparts. As before, the table shows that while progression ratios are lower for younger age groups, the decline is stronger among Christian women. This is also especially clear in the recent progression ratios from third to fourth births. While over 75% of Christian women aged 35 – 39 years progressed to having their fourth birth, only about 30% of the younger cohort (30 -34 years) did so. There are reductions among Muslims, but they are modest in comparison. The percentage decline in progression from third to fourth birth between ages 35-39 years and 25-29 years is 10% for Muslims and 60% for Christians. Muslim women who are aged 25-29 has third to fourth birth progression ratio that is double that of Christian women ten years their senior. Analyses of progression ratios to fifth birth (or higher) indicate that there is much less common among older cohorts of Christian women than their Muslim counterparts (for instance, among women aged 44 – 49 years, less than 50% progressed from fourth to fifth birth order compared to over 75% among Muslim women).

The trend in progression ratios from fourth to fifth birth by cohort is not clear for Christians (mostly probably because of small number of cases) and has been stable for Muslims. As with other progression ratios, the estimate for fourth to fifth progression ratio is higher for Muslim women than their Christian counterparts. The absence of reduction in high-order parity progression ratios (among Muslims aged 35 years and older) is consistent with previous evidence that fertility decline among Muslims is a more recent phenomenon.

Tables 2a and 2b presents censored parity progression ratios by time period. Consistent with previous results, the results indicate that the change in parity progression

ratios among Muslims (especially at moderate parities) is a recent phenomenon. Progression ratios from second to third parity declined only in the five years prior to the survey, while progression ratios from third to fourth parity and fourth to fifth parity declined in the last 10 years. Based on this, Muslim fertility (at moderate parities) in these poor urban settings started its decline in early 1990's when the civil war finally ended. There have been modest declines in Muslim fertility at high order parities prior to 1990's. Fertility decline (at moderate parities) among Christians have been underway at least ten years before that of Muslims. While progression ratios from first to second parity declined only in the five years prior to the survey, there have been declines in progression ratios from second to third parity in the past 15 years (prior to the survey). The results also indicate that the progression ratios from third to fourth or fourth to fifth parity have been declining about 20 years prior to the survey. This suggests that the onset of Christian fertility decline (at moderate parities) is at least since the early 1980's (during intense civil war fighting).

Table 3 shows means and standard deviations or percentages of demographic, socio-economic, 'religiosity', 'cultural capital' and contraception variables by religious affiliation. Women in the sample are, on average, aged 35 years with Christian women about four years older than Muslim women (this could be because the Muslim population in Lebanon is, on average, younger than the Christian population). The mean number of children is 3.3 for Muslim women and 2.7 for Christian women. Based on total marital fertility rate, married women – especially Muslim women – have relatively large number of children. This is less apparent in the "number of children ever born" because the mean age of women in the sample is relatively young. While the singulate mean age at marriage is 23 years for Muslims and 25.4 years for Christians (appendix 1), the mean age at marriage, which does not take into

account proportion unmarried, is around 20 years. The overwhelming majority of women is currently married and in their first marriage; however, this is slightly less the case for Muslim women.

On average, Christian women have, on average, one more year of education than Muslim women. However, for both groups educational attainment is not high. Reflecting past high levels of illiteracy – especially for Muslim women – in Lebanon, the majority of the women's mothers are illiterate. Parents of Christian women are on average more educated than their Muslim counterparts, and the difference is especially striking in the case of women. Probably as a result of low educational attainment and incompatibility between motherhood and work conditions in Lebanon, about 70% of Muslim and 60% of Christian women never have been engaged in paid work.

Contrary to studies in Europe or the U.S. where a significant number indicate no religious affiliation (Frejka and Westoff 2008), this is extremely rare in Lebanon. Most of the women reported that they are religious (especially Christian women) and pray very frequently (especially Muslim women). Muslim women reported more conservative/traditional attitudes regarding gender and the family – regarding women's freedom of movement, women's involvement in society, and who choose a girl's husband – than their Christian counterparts. While over 90% of Christian women stated that the girl herself should have the final decision regarding who to marry, the percentage was less than 65% among Muslims. In short, even though the three communities of this study are poor urban areas, the socio-economic status of Christian women was slightly better than that of Muslims and they also were less likely to adhere to traditional ideas regarding the role of women.

The majority of women were using contraception at the time of the survey (about 75% of Christians and 65% of Muslims). The use of withdrawal is very prevalent among Christian women (over 50%), while modern methods are the preferred among Muslims (47%). Zurayk (1979) similarly reported the more prevalent use of withdrawal among Catholics than Shia Muslims in the Nabatiyyeh district of Southern Lebanon (Zurayk, 1979). More Muslim women reported that they decide on their own (rather than in consultation with their husbands) which contraceptive method to use. This mostly likely is because Christians tend to use withdrawal which requires the consent and cooperation of the husband, while Muslims frequently use the pill or IUD.

We use Ordinary Least Square regression to examine the extent to which fertility differences by religious affiliation can be explained by socio-economic, 'religiosity' and cultural capital variables (table 4). Controlling for age (model 1), Muslim women have, on average, slightly more than one child than Christian women. The difference in fertility is only slightly attenuated after controlling for demographic variables (model 2) such as age at first marriage, marital status (married vs. widowed/separated/divorced), and number of times married (once vs. more than once). Additionally controlling for woman's years of education, parents' educational level, and the woman's work status (models 3 & 4) reduces the coefficient of religion in the regression analysis by about 7% only. Increases in education reduces the number of children ever born, however, the reduction is very small. In fact, the difference in the average number of children between a woman with 10 years of education and another with zero years of education is about half a child controlling for other variables. Women whose parents have had more than elementary education have, on average, fewer children than women who parents were illiterate. The effect is stronger in the case of mother's

education. Due to possible incompatibility between the demands of marriage and motherhood, on one hand and work conditions, on the other, women who had previously worked or who currently work have, on average, about one-third of child than women who never worked. In models 5 and 6, we additionally control for 'religiosity' and 'cultural capital' variables. Frequency of prayer has a statistically significant effect on fertility only after additionally controlling for the attitude and cultural capital variables. Two of the attitude measures (attitudes towards women's involvement in society and who chooses a girl's husband) have a statistically significant association with fertility such that women with more gender conservative attitudes are slightly more likely than to have children than their less gender conservative counterparts. The percentage reduction in the coefficient of religion after controlling for all the above variables is about 20% indicating that socioeconomic, 'religiosity', and 'cultural capital' factors explain only a modest part of the Christian – Muslim fertility differentials.

Discussion

Results from the parity progression ratios show that both Christian and Muslim women in the three poor communities in Lebanon are controlling their fertility. However, fertility decline among Christian women has been underway for sometime, while that for Muslim women (especially at parities three and four) is a very recent phenomenon. The Muslim women's higher fertility is due to a younger age at first marriage and first birth as well as higher proportions of women proceeding to have their higher-order parities. We examined the extent to which these differences can be accounted for due to different levels of socioeconomic status and religiosity. We do not find much evidence for each.

Controlling for woman's age, Muslim women have on average about one child more than Christian women. The percentage reduction in the coefficient of religion is only 2% after controlling for additional demographic variables and about 7% after controlling for both demographic and socio-economic measures. The evidence in support of the religiosity hypothesis is also modest. While Muslim women are less likely to be currently using contraception, the percentage using modern contraceptive methods are much higher than that of Christians. In addition, a very small percentage of Muslim women cited religious prohibition or husband's objection as reasons for their non-use of contraception.

In the regression analyses, women who reported greater levels of religious practice have about one quarter of a child more than women who do not practice as much. In addition, women who have more traditional values regarding women's role in society and women's freedom in choosing their spouses tend to have higher fertility than women with less traditionally gender-oriented views. However, the effect of the variables measuring religiosity and conservative gender attitudes on fertility is relatively small. After controlling for frequency or prayer, self-rated religiosity, cultural capital, and attitudes in addition to demographic and socio-economic characteristics, the percentage reduction in the coefficient of religion is about 21%.

In short, we do not find evidence that religion per se is affecting religious differences in marital fertility. Religious affiliation, however, might explain – to some extent[7] – Muslim women's younger age at first marriage and higher proportion married than their Christian counterparts. First, the cultural/ religious norms governing gender relations among Muslims in Lebanon are generally substantially less conservative than that of many Arab/Muslim countries. However, relative to their Christian counterparts in Lebanon, Muslims especially in

[7] Other factors could include economic conditions and mate availability ratio.

the two studied communities in Lebanon have stricter tradition and cultural norms regarding the appropriateness of socializing between unrelated men and women. Many young Muslims resort to marriage (as well as early marriage) to circumvent social control surrounding intermingling between sexes. The less gender-conservative norms among Christians could be affected by diffusion and greater exposure to 'Western' lifestyle (e.g. missionaries and early migration history to Western countries).While this is the current status of social norms, they are not necessarily static or resilient to change in the future.

Second, Lebanon lacks a unified civil system that organizes marriages, divorces, adoption, child custody and inheritance. As was the norm during the Ottoman Empire, the regulations of these issues are handled separately by each religious sect. Compared to Muslims, Christians often find it difficult to get divorce in Lebanon (some manage to get divorce in Cyprus but the process is expensive and time-consuming). As a result, it is possible that Christian men are more likely to delay or forgo marriage(personal communication, Hassan Diab) than Muslim men who have more leeway in terms of divorce and custody under Islamic Law (Appendix 1 shows that a substantial percentage of Christian men 35 years and older are still single).

In light of the finding that the characteristics and the religiosity hypotheses do not account for much of the marital fertility differences by religious affiliation, we offer other potential explanations that take into account the political, social and economic context of Muslims and Christians in Lebanon. First, following Lebanon's 1943 independence from France, the mostly Catholic Christian elites (specifically the Maronite elites) took over the political power in Lebanon. This was to a large extent due to the Maronites' close relations with France and their greater access to educational attainment (e.g. historic role of

missionaries). The returns on educational attainment were historically relatively higher for the Christians who also were more likely to have had more opportunities for social mobility because of Lebanon's political, economic and social structure (especially pre 1975 civil war). The shia Muslims, in contrast, were mostly residing in rural areas with limited access to the educational system or to high level positions in the new republic. Their prospects improved somehow after the civil war which created a new political order and sharing of power among the various sects of Lebanon.

We argue that the Christians' lower fertility is to some extent due to their perceived greater returns on education. Based on this, Christians will be more likely to invest in the education of their children (e.g. in terms of quality of schools) than Shia Muslims, to incur higher economic cost per child and to reduce their fertility accordingly. While Palestinians in Lebanon have relatively high educational attainment due to the role of United Nations Reliefs and Works Agency (UNRWA), they are generally excluded from professional jobs in addition to a large number of skilled occupations. So, their prospects were similar to Shia Muslims (this is very likely has changed after the civil war).

Second, Shia Muslims' presence in Beirut and its suburb is a more recent phenomenon than that of the Christians. In addition, they are still more connected (socially and economically) to rural areas of origin in the South or Bekaa and to the network of extended family which offers some economic help in terms of food supplies as well as more spaces for children than Christians. In this respect, the fertility of Shia Muslims is currently in a transitional phase between rural fertility and that of urban fertility. We argue that Shia Muslim's higher fertility is still influenced by the historical differences in urban/rural fertility especially that this group of migrants are relatively recent arrivals and still retain strong

contact with rural areas which have a much higher level of family size norm than Beirut (and its suburbs).

Third, the Christians' lower fertility could also be partly due to their greater exposure to Western countries due to the role of missionaries and migration history. Christians might have had earlier exposure to the notion that smaller families are better as well as information about contraceptive use (e.g. over 50% of the Christian women reported using withdrawal and less than 25% stated using modern contraceptive methods).

While the surveyed communities in this study are not representative of all communities in Lebanon, they point out to a very interesting pattern of large fertility differentials between Christians and Muslims in poor and deprived settings. This is in addition to the surprising finding that the total fertility rate of Christians (in these settings) is well below the replacement level. Two important questions remain unanswered: a) to what extent the low period TFR (of Christians) is reflective of low cohort TFR? and b) how likely that the Christian – Muslim fertility differentials disappear (or get attenuated) in the near future? In a country that have witnessed a significant number of violent sectarian conflicts, the answers to these questions might have profound implications for Lebanon's future political context.

Figure 1: Age-specific fertility rate by religious affiliation

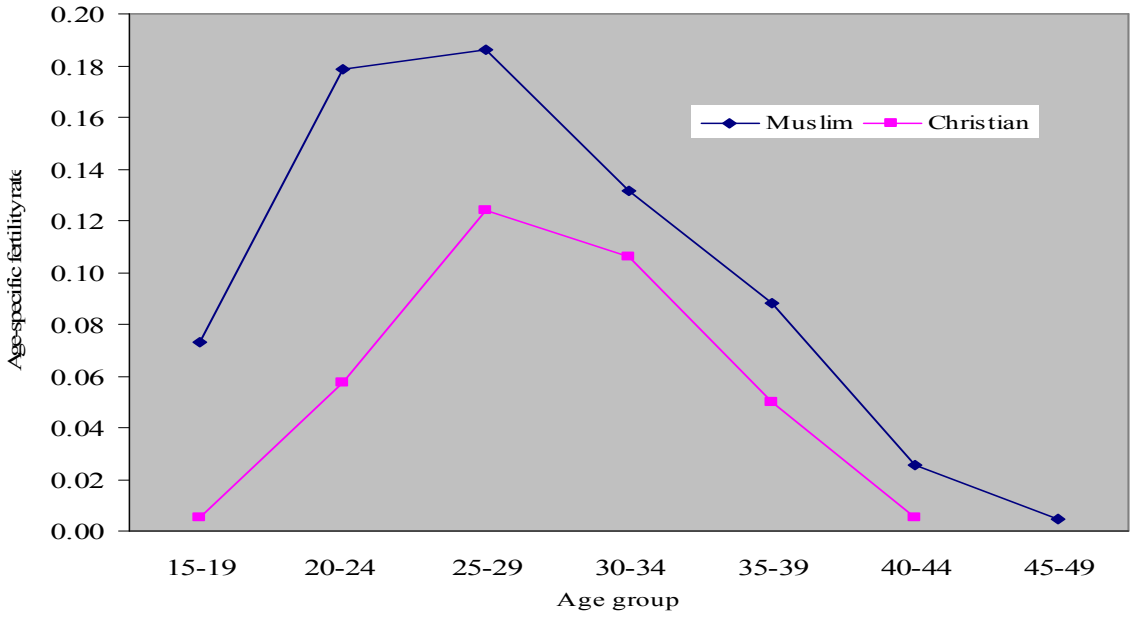

Figure 2: Fertility rate by religious affiliation

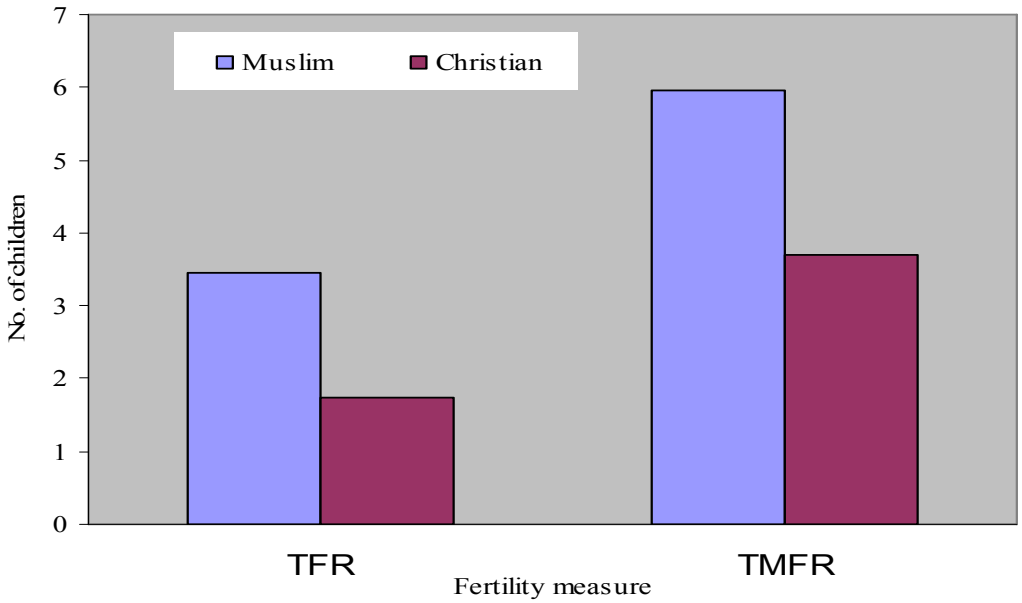

Table 1a: Quintums for Adjusted parity progression by Age among Muslims

Transition	1-2	2-3	3-4	4-5	5-6	6-7	7-8
20-24yrs	0.8941						
25-29yrs	0.9688	0.8982	0.6321				
30-34yrs	0.9859	0.9129	0.8021				
35-39yrs	0.9751	0.9573	0.8879	0.7337	0.6781	0.4144	
40-44yrs	0.9651	0.9526	0.9183	0.7765	0.7842	0.7430	0.6766
44-49yrs	0.9935	0.9546	0.9250	0.7648	0.8145	0.6355	0.6571

Table 1b: Quintums for Adjusted parity progression by Age among Christians:

Transition	1-2	2-3	3-4	4-5
20-24yrs				
25-29yrs	0.9124	0.6649		
30-34yrs	0.9466	0.6758	0.3040	
35-39yrs	0.9610	0.7919	0.7518	0.5882
40-44yrs	0.9505	0.8987	0.5671	0.3336
44-49yrs	0.9706	0.9211	0.7287	0.4623

Table 2a: Quintums for Parity Progression by Period among Muslims:

Transition	1-2	2-3	3-4	4-5	5-6	6-7	7-8
0-5 yrs	0.9488	0.7446	0.5791	0.4730			
6-10 yrs	0.9669	0.9316	0.8190	0.6353	0.6524	0.5121	
11-15yrs	0.9756	0.9529	0.9461	0.8800	0.6212	0.6090	
16-20yrs	0.9745	0.9870	0.9486	0.8627	0.8746	0.7166	

Table 2b : Quintums for Parity Progression by Period among Christians:

Transition	1-2	2-3	3-4	4-5
0-5 yrs	0.6414	0.5722		
6-10 yrs	0.9068	0.7078	0.5938	0.2470
11-15yrs	0.9486	0.8317	0.5394	0.3757
16-20yrs	0.9605	0.8636	0.6955	0.5608

Table 3: Descriptive statistics by religious affiliation

Variable	Categories	Muslim	Christian
Children ever born (mean & S.D)	0 – 13	3.3 (2.0)	2.7 (1.4)
Age (mean & S.D)	15 – 49	33.0 (7.7)	37.0 (7.0)
Age at 1st marriage (mean & S.D)	11 – 44	20.2 (4.5)	21.0 (5.0)
Martial Status (%)	Married	93.0	94.5
	Not married	7.0	5.5
Number of marriages (%)	Once	95.0	98.7
	More than once	5.0	1.1
Self-rated economic status (%)	Poor	48.3	47.9
	Neither rich nor poor	48.7	50.6
	Well off/not rich but manage	3.0	1.6
Years of education (mean & S.D)	0 – 21	8.3 (6.7)	8.8 (8.2)
Father's highest level of education (%)	Illiterate	34.1	33.5
	Read and write	33.2	38.6
	Elementary	20.2	21.2
	Post-Elementary	12.5	6.7
Mother's highest level of education (%)	Illiterate	72.2	52.9
	Read and write	11.7	26.1
	Elementary	10.5	14.6
	Post-Elementary	5.6	6.4
Employment Status (%)	Currently employed	13.8	19.7
	Previously employed	16.4	19.8
	Never employed	69.9	60.5
Frequency of prayer (%)	Several times per week or less	10.3	9.1
	Almost daily	10.2	55.0
	Several times per day	79.5	35.9
Self-rated Religiosity (%)	Somewhat religious	36.3	25.7
	Religious	58.8	49.3
	Very religious	4.9	25.0
Attitudes towards women's freedom of movement[a] (mean & S.D)	0 – 7	2.8 (1.5)	2.2 (1.2)
Attitudes towards women's involvement in society[a] (mean & S.D)	0 – 14	5.0 (3.0)	3.4 (2.1)
Attitudes towards household and childcare as women's responsibility[a] (mean & S.D)	0 – 2	1.2 (0.8)	1.2 (0.8)
Attitudes towards who chooses a girl's husband[a] (%)	Father/Family (traditional)	36.7	8.2
	Girl (non-traditional)	63.3	91.8
Women's involvement in household decision making[a] (mean & S.D)	0 – 10	4.1 (2.3)	3.8 (1.7)
Cultural capital index (mean & S.D)	0 – 7	0.5 (0.9)	0.8 (1.1)

[a] Higher values indicate more traditional attitudes/ behavior

Table 3: (cont'd)

Variable	Categories	Muslim	Christian
Current Method of Contraception[b] (%)	None	34.9	24.4
	Withdrawal	18.2	51.8
	Effective Modern Methods	4.9	3.3
	Very Effective Modern Methods	42.0	20.4
Reason for not using contraceptives[c] (%)	Fertility	65.6	54.6
	Accessibility issues/side effects	4.4	0.0
	Husband objects	1.0	0.0
	Other/no answer	25.4	32.6
	Reached menopause	3.5	12.8
Decision-maker of type of contraception (%)	Woman herself	31.7	12.0
	Husband	4.4	4.2
	Woman and husband combined	56.2	75.5
	Physician/other	7.7	8.3

[b] The effective modern methods include male condom and female condom, while the very effective modern methods include oral contraceptive, inter-uterine device, tubal litigation and injectables.
[c] The 'fertility' category included the following reasons: woman wants children, husband wants children, currently pregnant and currently breastfeeding. None of the women gave "religious objection" as a reason for not using contraception.

Table 4: OLS regression coefficients of children ever born

Independent variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Demographic						
Muslim (ref: Christian)	1.129 ***	1.106 ***	1.072 ***	1.048 ***	.962 ***	.892 ***
Age	.126 ***	.152 ***	.146 ***	1.46 ***	.144 ***	.146 ***
Age at 1st marriage		-.179 ***	-.178 ***	-.170 ***	-.170 ***	-.164 ***
Married		1.340 ***	1.496 ***	1.410 ***	1.411 ***	1.432 ***
Married more than once		.041	.242 *	.218 †	.252 *	.298 *
Socio-economic						
Years of education			-.007 *	-.005 †	-.006 †	-.005
Father's education						
Read and write			-.022	-.031	-.034	.033
Elementary			-.076	-.289	-.097	-.102
Post-elementary			-.178 *	-.176 *	-.173 *	-.052
Mother's education						
Read and write			-.003	0.000	-.001	-.044
Elementary			-.068	-.067	-.070	-.015
Post-elementary			-.266 **	-.277 **	-.284 **	-.264 **
Paid work status						
Worked previously				-.302 ***	-.288 ***	-.251 ***
Works currently				-.336 ***	-.335 ***	-.328 ***
Religiosity						
Frequency of prayer						
Almost daily					-.051	.049
Several times per day					.113	.207 **
Self-rated religiosity						
Religious					.081 †	.075
Very Religious					.023	.079
Attitude indices						
Freedom of movement[a]						-.012
Involvement in society[a]						.020 **
Household/Childcare[a]						-.008
Choosing husband[a]						.192 †
Decision making index[a]						.004
Cultural capital index						-.081 ***
N	4461	4430	3866	3866	3860	3506
R^2	.278	.475	.505	.511	.512	.515

Notes †p<0.10; * p<0.05; ** p<0.01; *** p<0.001

[a] Higher values indicate more traditional views/ behavior

Appendix 1: Proportion single and the singulate mean age at marriage (SMAM) by gender and religious affiliation

Age	Muslim women	Christian women	Muslim men	Christian men
15 – 19	81.9	91.7	99.5	100
20 – 24	43.1	78.0	84.4	93.1
25 – 29	24.3	41.1	46.9	75.2
30 – 34	18.9	24.3	18.9	48.6
35 – 39	14.0	22.6	6.1	28.4
40 – 44	8.9	15.4	2.9	13.5
45 – 49	11.4	17.9	0.8	8.0
50-54	4.6	15.8	0.0	3.9
SMAM	23.0	25.4	27.9	32.3

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