Religion and Contraception in Mozambique: A Multidimensional Analysis[*]

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Background

The connection between religion and reproduction has long attracted researchers' attention. Historical analyses of Western Europe suggest that fertility decline often reflected differences in religious affiliation and involvement (Anderson 1986). Numerous studies of the United States highlighted religious differences, mainly between Catholics and Protestants, in fertility in the nineteenth and much of the twentieth centuries (Freedman et al. 1959; Bouvier and Rao 1975; Parkerson and Parkerson 1988; Gutmann 1990). These differences began to disappear quickly since the late 1960s (Westoff and Jones 1979; Mosher et al. 1992; Herold et al. 1989). However, while denominational differences have indeed diminished, religiosity continues to play a non-trivial role in reproductive outcomes: regardless of denominational affiliation more religious people usually have higher fertility and lower contraceptive use (Brewster et al. 1998; Goldscheider and Mosher 1991; Hayford and Morgan 2008; Zhang 2008). But even if the influence of religion on childbearing may have been declining in Western societies, evidence from the developing world points to considerable religion-related differentials in fertility and contraception (e.g., Agadjanian 2001; Agadjanian 2003; Agadjanian et al. 2009; Bailey 1986; Berhanu 1994; Chamie 1981; Cosper 1975; Gregson et al. 1999; Jayasree 1989; Johnson 1993; Johnson and Burton 1987; Johnson-Hanks 2006; Knodel et al. 1999; Kollehlon 1994; Sembajwe 1980, Yeatman and Trinitapoli 2008).

Conventionally, the influence of religion on fertility is cast within three conceptual frameworks, or general hypotheses—the particularistic theology hypothesis, characteristics hypothesis, and minority-group status hypothesis (Johnson 1993). However, despite the growing

amount of research that entertains each of these perspectives, little consensus has emerged even though the characteristics hypothesis, which reduces religious differentials in fertility to sociodemographic, economic, or cultural characteristics of adherents of different religions and denominations, seems to be favored by most fertility scholars, especially in the demography camp.

A common drawback of many existing studies is the treatment of both religion and reproductive and contraceptive behavior only as the individual-level phenomena without adequate attention to community religious context. Also, the literature often fails to fully account for the historical roots and the dramatic transformation and diversification of the contemporary religious landscape, especially in many sub-Saharan settings, where these changes have been fueled to a large extent by the phenomenal growth of evangelical and Pentecostal Christianity. In today's sub-Saharan African settings, this burgeoning religious diversity and a correspondingly large role that religion plays in everyday life create conditions for a strong influence of religion on demographic and specifically reproductive behavior and outcomes (cf. McQuillan 2004). Importantly, however, the contemporary religious complexity of the sub-continent has not only an ideological but also a social component: churches and denominations differ not so much in their theology as in their social teachings and practices. Accounting for this complexity is necessary for a better understanding of the role of religion in the fertility transition on the sub-continent.

Theory

My conceptual model draws from an earlier conceptualization of religious differences in reproduction and contraception (Agadjanian 2001). This conceptualization complements the

three conventional perspectives on religion and demographic behavior mentioned above with an emphasis on organizational characteristics and social makeup of religious congregations. I argue that denominations that are ideologically more flexible, socially more diverse, and politically better connected may hold an advantage in appropriating novel reproductive models and technologies. Although this advantage is usually specific to sociocultural contexts and to the stage of the fertility transition and is therefore of limited historical duration, it may have a non-trivial impact on the course and dimensions of reproductive change. Rural and semi-rural sub-Saharan Africa, where fertility decline and contraceptive uptake have barely started and where organized religion wields enormous influence on every aspect of people's daily lives, offers a perfect laboratory for exploring these complex connections between religion and reproductive and contraceptive use.

My analysis focuses on use of modern contraception. I approach the religion-contraception link from three different angles. First, I look at individual religious affiliation. I compare individuals who report a religious affiliation and those who do not; I also consider specific denominational affiliations and corresponding denominational differences in modern contraceptive prevalence. Following previous findings (Agadjanian 2001), I expect to find a particularly salient contraceptive divide between what I define as well-established churches, such as Catholics and "mainline" (Mission-initiated) Protestant, and the rest of the population, including non-affiliated women and members of newer, locally grown Apostolic and Pentecostal-type denominations, especially those that in southern Africa are encompassed under the Zionist umbrella.

My second focus is on individual religious involvement. If religious involvement is a proxy for greater religiosity, and greater religiosity is in term is associated with more conservative

patterns of reproductive and contraceptive behavior, as has typically been the case in contemporary western societies , then religious involvement should be inversely related to contraceptive use. However, if religious involvement entails benefits in access to novel tastes and technologies, as it may be the case of rural sub-Saharan Africa, then, on the contrary, higher attendance, all else being equal, should increase the likelihood of contraceptive use.

Finally, I look at the community-level religious characteristics. I suggest that community religious environment, represented by the presence of religious organizations (especially of the type that are conducive to reproductive innovation) may influence individuals' reproductive and contraceptive choices above and beyond the effect of individual-level religious characteristics (see Agadjanian et al., 2009). Here again, I hypothesize that the presence of Catholic and Mainline churches in particular will increase the likelihood of contraceptive use regardless of individual affiliation.

Data

Data for this study come mainly from a representative population-based cluster survey of 2019 women aged 18-50 conducted in 2008 in Chibuto district of southern Mozambique, a high-fertility and predominantly Christian area with high levels of religious membership and considerable denominational diversity. Indeed, based on our fieldwork I estimate that there is one religious congregation for about every 150-200 district residents. Before Mozambique's independence from Portugal in 1975, Catholicism was the colony's quasi official religion. Yet the colonial era also saw a considerable growth of mission-initiated (or "mainline" in my definition) Protestant churches. Besides these churches, the study area has a considerable presence of other denominations. Most remarkable, however, has been the explosive growth of

Pentecostal denominations, especially Zionist (locally called *zione*) churches. Some of the Zionist churches were imported from South Africa, but many are homegrown in southern Mozambique. They are characterized by a strong emphasis on miracle healing that is often aided by herbs and similar medicines often borrowed straight from traditional healers' (*tin'anga*) healing kits, even though Zionist leaders adamantly reject the very institution of traditional spirit-based medicine. Not surprisingly, these churches appeal most strongly to the poorer segment of the population.

The survey was carried out in 82 randomly selected communities (clusters), both in the urban and peri-urban neighborhoods of the district's administrative center and in villages of its rural areas. In addition to standard socioeconomic, demographic, and cultural details, the survey collected information on: women's complete religious affiliation histories since birth, characteristics of current religious involvement, complete birth histories, and reproductive preferences and current contraceptive use.

In parallel to the women's survey, an institutional survey of all religious congregations of the district, including those to which the household survey participants belonged, was carried out. The content of the congregation survey questionnaire, administered to congregation leaders, paralleled that of the women's survey. For both surveys, the geographic coordinates of households and religious congregations, respectively were also recorded.

Method

The outcome variable is whether or not a woman was using a modern contraceptive method (the pill, injectables, IUD, condom, or tubal ligation) at the time of the survey. The question about contraceptive use was not asked of pregnant respondents, and they are obviously excluded from

the analysis. Respondent's religion affiliation—whether she reported belonging to a religion or church—is the first predictor. In addition to this dichotomy, I group the respondents with a religious affiliation into four denominational categories: Roman Catholic; mainline Protestant (e.g., Presbyterian, Methodist, Anglican, etc.); Zionist; and Other Pentecostal. Although this classification does not capture all the intricacies of denominational distinctions in the area's religious kaleidoscope, it does reflect the denominational divides that are most relevant to the subject of this study. Similar classifications have been successfully used for the analysis of reproductive and HIV/AIDS-related behavior (Agadjanian 2001; 2005). The analysis excludes twelve Muslim women and three Jehovah Witnesses members.

To capture the effect of religious involvement I use frequency of religious attendance by women reporting a religious affiliation. These respondents were asked how many times in the two weeks preceding the survey they went to their congregations. Frequency of attendance is operationalized as a set of dummy variables: never; once or twice; and more than twice. Finally, to explore the community religious influence, I add an indicator of community religious makeup. It is based on the geocoded information from the institutional survey and is operationalized as the number of congregations belonging to the Roman Catholic or Mainline Protestant churches within one kilometer of the respondent's residence for respondents living in urban areas and within 5 kilometers for rural areas. The different scale used for urban and rural areas reflect the vastly different social ecologies of the two parts of the district.

Because the outcome variable is a dichotomy, binomial logistic regression is used for multivariate analyses. The models control for sociodemographic characteristics measured at the time of the survey. Also, because respondents residing in the same survey clusters my share some unobserved characteristics, a random-intercept approach is employed so as to minimize the

related bias in the estimates. All the statistical tests are fitted using the GLIMMIX procedure in SAS, Version 9.

Results

Table 1 presents the percentages of non-pregnant respondents who were using a modern contraceptive method by individual religious characteristics. Clearly, women who belonged to religious congregations had a higher level of modern contraceptive use than women who did not. The distribution of contraceptive users across the categories of denominational affiliation and involvement displays considerable variation. On the one end of a fairly wide range are Roman Catholics, among whom almost a third were using a method. On the other end of that range are members of Zionist and other Pentecostal congregations, with only 20% being current contraceptive users. Mainline Protestants are very close to Catholics, whereas members of Apostolic churches gravitate toward Zionists and other Pentecostals.

Among women who reported an affiliation (88% of all non-pregnant women), the prevalence of modern contraceptive use seems to increase with frequency of religious attendance, reaching 28% among women who went to church more than twice in the two weeks preceding the survey, compared to 20% among those who did not go to church at all in the same time period. The intermediate group, those who attended only once or twice, stood in the middle but somewhat closer to non-attendees.

Table 1 about here

Table 2 presents the results of three random-intercept logistic regression models predicting

current modern contraceptive use among all non-pregnant respondents. In all three models, women affiliated with a church are contrasted to those without an affiliation. The model presented in column A is a baseline model that does not include any controls. The model shows that women with a religious affiliation are significantly more likely to use family planning. However, when the sociodemographic characteristics typically associated with contraceptive use are included (Model 2B), the effect of religious affiliation decreases in magnitude and is no longer statistically significant (as one would expect under the "characteristics" hypothesis).

Table 2 about here

The third model (Model 2C) adds the number of religious congregations in respondents in relative proximity to respondent (within 1km in urban areas and within 5km in rural areas). The corresponding coefficient is statistically significant suggesting that the higher the density of religious congregations near a respondent's residence, the more likely she is to use contraception regardless of other factors. The addition of the religious context variable does not change the magnitude of the individual religious affiliation, which remains positive but statistically non-significant.

The set of models displayed in Table 3 breaks down the affiliated category into five denominational groups: Roman Catholics, Mainline Protestant, Apostolic, Zionists, and other Pentecostals. Non-affiliated women are again the reference category. In the baseline model (Model 3A), Catholics display a particularly large difference from non-affiliated women (odds ratio=exp(.168)=1.18), followed by Mainline Protestant (OR=1.15). The difference between Apostolic women and Zionists, on the one hand, and the reference group are more modest and

only marginally significant ($p<.1$). Finally, other Pentecostals are not different from non-affiliated women in the likelihood of using modern contraceptive methods.

Table 3 about here

Model 3B adds the same sociodemographic controls as in the previous set of models. These controls are themselves powerful predictors of contraceptive use. However, although the effect of being Catholic diminishes noticeably in magnitude (OR=1.10), it remains statistically significant. The coefficient for mainline Protestant affiliation also declines in magnitude and now is only marginally significant. None of the other three denominational groups are now distinguishable from women without affiliation.

The last model in Table 3 (Model 3C) adds the indicator of mainline denominations' density. The addition of this measure does not change the effects of individual affiliation appreciably. The effects of the density measure are quite intriguing: higher density of Catholic and Mainline Protestant congregations is conducive to higher likelihood of modern contraceptive use regardless of individual affiliation (odds of contraceptive use increases by 1.1% with each additional Catholic or Mainline Protestant congregation in the area surrounding the respondent's residence).

To examine the effect of religious involvement, I exclude the respondents who did not report a religious affiliation at the time of the survey. Table 4 displays the results of two models—one that includes denominational affiliation (with Other Pentecostals as the reference category), frequency of religious attendance, and the controls (Model 4A) and another that also adds denominational density (Model 4B). In Model 4A, Catholics and, to a lesser degree, Mainline

Protestants are significantly different for Other Pentecostals, while Apostolics and Zionists are not. Most interestingly, mirroring the already observed bivariate pattern, the likelihood of contraceptive use tends to *increase* with frequency of religious attendance. While women who attended their churches once or twice in the two weeks before the survey were not significantly different from women who did not attend at all, those who attended more than twice were significantly more likely to use modern family planning than non-attendees. The magnitude of the effect is not very large (OR=1.07), but its direction and statistical significance are instructive nonetheless.

Table 4 about here

Model 4B adds density of Catholic and Mainline Protestant congregations. The effect of this measure is similar to those in the model with the full sample (Model 3C). As in that model, density of Catholic and Mainline Protestant churches is associated with a higher likelihood of contraceptive use. The addition of this contextual measure only slightly decreases the effects of individual religious affiliation; the effect of high frequency of attendance also diminishes a little but remains statistically significant.

Discussion

The forgoing analysis has produced informative results. While at the bivariate level women with any religious affiliation were significantly more likely to be using modern contraception than non-affliated, this difference was explained away by women's other characteristics. However, as we had hypothesized, the sociodemographic controls did not erase significant differences

between Catholics and (to a lesser degree) Mainline Protestants, on the one hand, and non-affiliated women on the other.

Catholics' "contraceptive advantage," however modest, may seem counterintuitive given the Church's official position on artificial birth control. However, higher contraceptive prevalence among Catholics and Mainline Protestants compared to other religious groups in sub-Saharan Africa is not unusual (Agadjanian 2003). What then makes Roman Catholics and Mainline Protestants more receptive to contraceptive technologies? It can be speculated that their "contraceptive advantage" is a consequence of greater social diversity of the Catholic and Mainline Protestant communities and its connections with the educated elites, especially within the local medical establishment. I further argue that the unique advantage of Catholics has deep historical roots, going back to colonial period, when Roman Catholicism was almost the official church of the Portuguese state. Mainline Protestants are similar to Catholics historically, even though their political rise more recent and associated with the national liberation struggle and independence. This similarity of historical trajectories of Catholics and Mainline Protestants translated to a similar receptiveness of novel reproductive technologies. The Mainline Protestant churches category is, of course, internally heterogeneous, which may explain the weaker statistical effect, but the relatively small number of mainline Protestants in the sample does allow for a breakdown of that group.

Of course, hardly any local church leader, Catholic or otherwise, explicitly brings up and promotes family planning at church service or other congregation events (perhaps with the exception of condoms for HIV/STI prevention). Contraceptive use is simply outside of most religious leaders' agenda, and if anything, the messages extolling family and motherhood values and wife's submission to husband's will are more likely to discourage fertility control, even if

indirectly. It is possible, as Yeatman and Trinitapoli (2008) showed in their study in Malawi, that some church leaders may explicitly approve of family planning (even if sometimes contrary to their churches' official stance) and that approval, rather than denominational identity, is what matters most for church members' contraceptive behavior. Yet, as I also argue, women are exposed to more than the teachings they hear from the pulpit when they come to church. Informal communication with and learning from fellow church members on the margins or even outside of the church official routine can be more consequential for their contraceptive education (see Kohler 1997; Rutenberg and Watkins 1997) as for other health-related outcomes such as HIV/AIDS attitudes and behavior (Agadjanian and Menjívar 2008). It is possible that such informal communication is most effective in socially diverse religious settings such as those of the Catholic and mainline Protestant churches.

The limitations of the data do not allow us to explore this supposition directly. However, indirectly the finding that frequent attendance of church services is associated with increased contraceptive use regardless of affiliation—a finding that challenges conventional, western – assumed notion and implications of religiosity—lends support to the idea that active social involvement with organized religion may be conducive to faster learning and adopting of novel technologies such as contraceptives. This interpretation is in line with earlier research which points to the importance of religious organizations' social environment for contraceptive use (Agadjanian 2001, Yeatman and Trinitapoli 2008).

Finally, the results support our hypothesis that the Catholic and mainline Protestant churches may foster contraceptive use not only among their members but also among other people in the community. These results parallel Agadjanian et al.'s (2009) findings about the effects community religious makeup on contraceptive use above and beyond individual religious

affiliation. Again, the limitations of the data preclude more refined inferences, but the findings delineate an important avenue for further research.

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Table 1. Current use of modern contraception by religious affiliation (percent of non-pregnant women, N=1756)

Religious characteristics	Current use of modern contraception
Religious affiliation	
Not affiliated with a religion or church (n=203)	13.8
Affiliated with a religion or church	23.6
Catholic (n=225)	32.4
Mainline Protestant (n=176)	30.1
Apostolic (n=215)	23.3
Zionist (n=753)	20.1
Other Pentecostal (n=185)	20.0
Attendance among those with current religious affiliation	
Did not attend church in past two weeks	20.2
Attended church once or twice in past two weeks	22.9
Attended church more than twice in past two weeks	27.5

Table 2. Current use of modern contraception among all women, random intercept logistic regression parameter estimates

Predictors and controls	A		B		C	
Religious affiliation						
Affiliated with a religion/church	0.079	**	0.037		0.037	
Not affiliated with a religion/church	0		0		0	
Religious context						
Number of religious congregations nearby					0.001	+
Controls						
Age 18-24 (ref.)			0		0	
Age 25-34			-0.073	**	-0.074	**
Age 35 or older			-0.191	**	-0.191	**
In monogamous union			0.073	**	0.071	**
In polygamous union			0.107	**	0.107	**
Not in union (ref.)						
Number of living children			0.042	**	0.042	**
Wants more children			-0.015		-0.015	
Doesn't want more/unsure (ref.)			0		0	
No education (ref.)			0		0	
Education, 1 to 4 years			0.057	**	0.052	*
Education, 5 or more years			0.203	**	0.198	**
Currently works outside the home			0.038	+	0.037	+
Currently does not work outside the home (ref.)			0		0	
Lives in district capital or its suburbs			0.102	**	0.102	**
Lives outside district capital (ref.)			0		0	
Number of cases	1756		1756		1756	

Note: Significance levels: + p<=.10; * p<=.05; ** p<=.01

Table 3. Current use of modern contraception among all women, by denominational affiliation, random intercept logistic regression parameter estimates

Predictors and controls	A		B		C	
Religious affiliation						
Roman Catholic	0.168	**	0.099	**	0.093	*
Mainline Protestant	0.139	*	0.076	+	0.073	+
Apostolic	0.076	+	0.034		0.029	
Zionist	0.054	+	0.027		0.027	
Other Pentecostal	0.048		-0.006		-0.006	
Not affiliated with a religion/church	0		0		0	
Religious context						
Number of Catholic/Mainline Protestant churches nearby					0.008	**
Controls						
Age 18-24 (ref.)			0		0	
Age 25-34			-0.072	**	-0.073	**
Age 35 or older			-0.191	**	-0.190	**
In monogamous union			0.073	**	0.071	**
In polygamous union			0.107	**	0.110	**
Not in union (ref.)			0		0	
Number of living children			0.041	**	0.041	**
Wants more children			-0.018		-0.015	
Doesn't want more/unsure (ref.)			0		0	
No education (ref.)			0		0	
Education, 1 to 4 years			0.051	*	0.046	*
Education, 5 or more years			0.191	**	0.182	**
Currently works outside the home			0.038	+	0.039	
Currently does not work outside the home (ref.)			0		0	
Lives in district capital or its suburbs			0.107	**	0.126	**
Lives outside district capital (ref.)			0		0	
Number of cases	1756		1752		1752	

Note: Significance levels: + p<=.10; * p<=.05; ** p<=.01

Table 4. Current use of modern contraception among women with a religious affiliation, random intercept logistic regression parameter estimates

Predictors and controls	A		B	
Religious affiliation				
Roman Catholic	0.113	**	0.107	**
Mainline Protestant	0.088	*	0.084	*
Apostolic	-0.029		-0.025	
Zionist	0.031		0.031	
Other Pentecostal	0		0	
Not affiliated with a religion/church				
Religious attendance				
Did not attend church in past 2 weeks (ref.)	0		0	
Attended church 1-2 times in past 2 weeks	0.027		0.028	
Attended church 3 or more times in past 2 weeks	0.068	**	0.066	*
Religious context				
Number of Catholic/Mainline Protestant churches nearby			-0.007	*
Controls				
Age 18-24 (ref.)	0		0	
Age 25-34	-0.073	**	-0.073	**
Age 35 or older	-0.20	**	-0.199	**
In monogamous union	0.073	**	0.073	**
In polygamous union	0.107	**	0.109	**
Not in union (ref.)	0		0	
Number of living children	0.043	**	0.043	**
Wants more children	-0.018		-0.017	
Doesn't want more/unsure (ref.)	0		0	
No education (ref.)	0		0	
Education, 1 to 4 years	0.053	*	0.047	+
Education, 5 or more years	0.183	**	0.173	**
Currently works outside the home	0.042	+	0.044	
Currently does not work outside the home (ref.)	0		0	
Lives in district capital or its suburbs	0.108	**	0.127	**
Lives outside district capital (ref.)	0		0	
Number of cases	1551		1551	

Note: Significance levels: + p<=.10; * p<=.05; ** p<=.01