Beyond Denomination: New Tests of Whether and How Religion Matters for Family Planning

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Introduction

The sub-Saharan African AIDS epidemic has prompted new discussions about the role of religious doctrine and religious institutions in shaping sexual behavior. However the importance of religion for other forms of reproductive behavior has been comparatively neglected in recent years. Since religion and fertility are two of the dominant features of the rural African landscape, questions about how these two phenomena are related are relevant to developing better understandings of the cultural and demographic features and futures of this region.

In this paper, we ask about how religion and religious involvement are associated with fertility behavior in rural Malawi. To do so we draw on unique individual and congregational-level data that allow us to move beyond the status-quo of demographic studies on religion and fertility, which has been to identify and explain differences in fertility patterns between broad denominational categories. In focusing our attention at the congregational level – the level of direct interaction with both religious authority (leaders) and lay people (fellow congregation members) - we examine characteristics that are both more relevant to the lives of rural Malawian women and more sociologically interesting for testing and improving theories of religious influence on sexual behavior.

Theoretical Framework

The socio-demographic literature suggests a number of ways through which religion can influence fertility and demonstrates that the predominant mechanisms at play differ by historical and cultural context. Calvin Goldscheider's seminal work on religious influences on fertility (1971) hypothesized about three of the principal mechanisms by

which religion, primarily religious identity, may shape fertility and fertility-related behavior – 1) as a proxy for other relevant socio-demographic distinctions, 2) through relevant teachings, both formal and informal, and 3) because of minority group status. The characteristics hypothesis states that many fertility differentials that appear to be religious are actually the function of underlying socioeconomic differentials. In other words, upon careful measurement of these "other" characteristics, the previously observed religious distinctions disappear. Alternatively, the particularized theology hypothesis maintains that certain religions have specific doctrines or norms concerning family size, contraception or gender that drive differences in fertility-related behaviors and actual fertility by denomination (Goldscheider 1971; McQuillan 2004). Though tests of the particularized hypothesis frequently examine contraceptive behavior – specifically prohibitions against the use of artificial contraception such as those held by the Catholic Church, this explanation is not limited to doctrine per se. As McQuillian and others have pointed out, in the absence of clear teachings on contraceptive use, religion may shape reproductive behavior through the promotion of relevant values – such as traditional gender roles, pro-natalism, or investing heavily in few children. Third, the minority-group hypothesis suggests that minority religious communities might strategize to decrease fertility to improve social mobility or to increase fertility to ensure group preservation.

More recently, Agadjanian (2001) introduced a fourth hypothesis which we refer to as the socialization hypothesis. Building upon research on the role of social interaction in shaping reproductive behavior (Bongaarts and Watkins 1996; Montgomery and Casterline 1996; Kohler 1997; Rutenberg and Watkins 1997), Agadjanian argues that

religious organizations create forums for social interaction. The socialization hypothesis is particularly salient in the context of sub-Saharan Africa (SSA) where religious organizations are a main source of social exposure. While certainly not the only forum for such interaction, religious institutions provide regular opportunities for both social learning, fostering the exchange of innovative information such as modern contraception, and social influence, demonstrating norms of behavior. These types of social interaction may subsequently lead to differentials in reproductive behavior.

Importantly, these four hypotheses are not mutually exclusive but rather can operate in conjunction with one another and to varying degrees in different religious and reproductive contexts. Previous studies on the relationship between religion and fertility in rural SSA provide evidence that all four hypotheses are likely at play in this setting. While recent research in Ghana found that denominational differences in socioeconomic and demographic characteristics accounted for contraceptive differentials in rural women (Addai 1999), lending credence to what Goldscheider dubbed the characteristics hypothesis, other studies have concluded by their support for alternative explanations. In rural Zimbabwe, the prohibitions against modern medicine and modern contraceptive use by strict Apostolic churches have been found to be significantly more salient than those from the Catholic Church, leading to lower contraception and higher fertility among Apostolics (Gregson, Zhuwau et al. 1999). Gregson's findings lend secondary support for the minority group hypothesis, as Apostolics are an embattled, counter-cultural religious minority in Zimbabwe.

The minority group hypothesis has received less attention overall but has been the subject of inquiry in religiously diverse SSA countries – particularly those with

substantial Muslim populations. Anecdotal and empirical evidence from Muslims in other parts of the world have led researchers to expect that Muslims in SSA may strategically alter their fertility. Asian Muslims have more pro-natalist attitudes than their Christian counterparts (Morgan, Stash et al. 2002), and although Islam does not prohibit the use of contraception strictly speaking, some have offered religious reasons for not using contraception (Caldwell and Barkat e 2000; Casterline, Sathar et al. 2001). This does not, however, appear to be the case in SSA. Population-level work in West Africa found that Muslims have lower fertility in areas where they are the majority group; contrarily, the observed higher fertility rates found among Muslims in areas where they are the minority are largely accounted for by differences in socioeconomic conditions (Johnson-Hanks 2006). In other words, while the Zimbabwe study garners support for both the particularistic theology and religious minority hypotheses, country-level data presented by Johnson-Hanks supports both the minority group and characteristics hypotheses.

Based on data from Mozambique, Agadjanian (2001) argues that observed religious differences in reproductive behavior in SSA are due largely to social interaction fostered through religion rather than to teachings, norms or different socioeconomic compositions. Specifically, he found that in urban Mozambique Mission Protestants and Catholics were more likely to have used or had conversations about modern family planning than were women from "spirit-filled" or more evangelical churches. He contends the urban religious setting, in which churches tend to be large and diverse, facilitates interaction and mixing of women of different education levels, thus enabling social learning that is relevant to reproductive behavior. In other words, women who were less likely to know of or use contraceptives, came into contact with women who

were well-versed in these technologies and subsequently adopted their behaviors. While religious effects in urban areas were specific to members of particular groups, in rural areas, on the other hand, *any* religious involvement was associated with increased contraceptive use and contraceptive dialogue. For rural Mozambican women, attending religious services exposes the advantage of social interaction provided by congregations in what can otherwise be a quite isolated lifestyle where little new information is available.

The socialization hypothesis is, of course, a variation on the notion of diffusion, which has long played a critical if occasionally controversial role in theorizing on fertility decline and the spread of contraceptive use (Cleland and Wilson 1987; Bongaarts and Watkins 1996; Mason 1997). At an interpersonal level, social networks and the social interaction that they foster can have substantial influence on reproductive behaviors (Entwisle, Rindfuss et al. 1996; Kohler 1997; Rutenberg and Watkins 1997; Behrman, Kohler et al. 2002) through the processes of social learning and social influence. The former describes new information drawn upon by individuals when they weigh alternatives and make decisions; the latter describes social pressures that can influence decision making through the demonstration of norms of behavior (Montgomery and Casterline 1996).

Social groups such as women's groups, church groups, and microfinance cooperatives are often the main sources of social interaction in rural SSA. The literature demonstrates the importance of such voluntary associations in influencing health behavior (Berkman 1984; Hyppa 2003; Rietschlin 1998) as well as reproductive decision making (Barber, Pearce et al. 2002; Soldan 2004). There are many mechanisms through

which these groups are hypothesized to influence reproductive decision making. One such empirically-supported mechanism is that these groups facilitate dialogue about contraceptive use (Soldan 2004) and the spread of contraceptive innovation within communities (Barber, Pearce et al. 2002). Evidence from Malawi suggests that it is through these conversations that women revise their contraceptive knowledge and preferences whereas men are more likely to observe others and draw conclusions based on those observations (Soldan 2004). As the most common voluntary association in sub-Saharan Africa and one of the only opportunities for social interaction, religious congregations offer a nearly perfect opportunity to examine these influences more closely.

While one would not expect religious groups in sub-Saharan Africa (or anywhere for that matter) to regularly discuss family planning in the main weekly services, "extra-curricular" religious groups may, on the other hand, provide a forum for this type of exchange. The sex-segregated nature of these groups, the frequency with which they convene, and their comparatively heterogenous composition create opportunities for the exchange and spread of new ideas about contraception. In examining the role of religion in shaping contraceptive use in rural Malawi, we find Adgajanian's argument that religious involvement provides opportunities for reproductive-relevant social learning most compelling; we build and extend upon it by exploring the specific role of "extra-curricular" religious activities in shaping reproductive behavior across Christian and Muslim groups. Moreover, the diffusion literature offers compelling motivation for our decision to consider the important roles of both social interaction and voluntary associations in predicting contraceptive use.

In this paper, we argue that in the absence of specific doctrine about family size or contraceptive use, religious settings affect contraceptive use, and through them actual fertility, through the fostering of social interaction. We begin by triangulating various sources of data on the nature of religion and fertility to prioritize the main mechanisms operating in rural Malawi. Second, we use survey data from three sites in rural Malawi to explore the most plausible of these---that religion matters for fertility less through denomination than as a critical forum for social learning and social influence.

Specifically, our approach differs from the existing literature in two key ways. First, unlike previous studies, we extend our work to include the experiences of both Christians (Mainline churches, Evangelical churches, Indigenous churches – known as AICs) and Muslims. In his work, Agadjanian (2001) excludes Muslims (despite their making up 18% of Mozambican population) because their religious participation differs measurably from Christians. However, there is little reason to believe that if the key operating mechanism relating religion and fertility in this context is social interaction rather than norms or doctrine that it should differ for Muslims, even if their expression of religious involvement and how it is captured on surveys differs from Christian groups. Actually, if the relationships between religious involvement and contraceptive use (and networks) operate similarly for groups as different at Pentecostals and Muslims, the case for the socialization hypothesis will be greatly strengthened. Secondly, in order to assess the socialization hypothesis, we examine religious influences at the *congregational* level – the level of regular interaction for rural Malawians – rather than at the denominational level. While denomination may serve as a rough proxy for the characteristics of one's congregation, especially when interacted with other key variables such as urbanicity,

ethnographic literature on religious life and practice in SSA has established that there is wide variation within denominations; therefore use of broad denominational categories is a notable limitation in the existing literature – as both a conceptual and methodological problem. Exploring associations at the congregational level offers a dramatic improvement over the industry standard. Aside from the uniquely designed dataset we employ, we know of no other data with this capacity.

Data and Methods

The data for this analysis come from the Malawi Diffusion and Ideational Change Project (MDICP),[1] an ongoing, longitudinal data collection project in rural Malawi that was designed to examine the role of social interactions in family planning, contraceptive decisions making, and the diffusion of knowledge about HIV and AIDS. The MDICP began in 1998 with a sample of 500 ever married women and their husbands (if currently married), using a cluster sampling strategy from 145 randomly selected villages in three rural districts. We rely primarily on the third wave of the MDICP survey, which was collected in 2004 and contained questions about contraceptive use and an extensive module on religion and religious involvement. In order to circumvent some of the limitations of a cross-sectional analysis, we triangulate our research using other quite unique sources of data. Specifically, we use data from the Malawi Religion Project (2005),[2] a sister project to the MDICP survey, which collected both in-depth interview and survey data from the religious leaders of all the MDICP respondents who were

[1] Malawi Diffusion and Ideational Change Project (PIs Susan Watkins, Hans-Peter Kohler and Jere Behrman). For more information, visit http://www.malawi.pop.upenn.edu/

[2] Malawi Religion Project (PIs Susan Watkins). See Trinitapoli (2007) for a thorough description of these data.

interviewed in 2004. Using unique congregation identifiers, we attach the characteristics of the congregation and the religious leader to individual data from 2004. Finally, in assessing the dominant hypotheses and interpreting the survey data, we draw on three distinct types of qualitative data: 1) participant observation data (referred to as "sermon reports") collected from over 85 religious congregations in 2004, 2) in-depth interview data from a sub-sample of lay female survey respondents conducted in the summer of 2005 centering around the issues of religion, AIDS, and family planning, and 3) the authors' own fieldnotes.

Dependent Variables

A long history of demographic research has identified the proximate determinants of fertility in populations to be: contraceptive use, abortion, postpartum insusceptibility (breastfeeding and abstinence), sexual exposure, fecundability and sterility (Bongaarts 1982). We focus our analysis on contraceptive use as it probably the most malleable, the easiest to measure, and the key determinant for the bulk of worldwide fertility transitions.

We employ two complementary dependent variables drawn from the 2004 MDICP. The first dependent variable is a dichotomous indicator of *ever* use of family planning and the second, a dichotomous indicator of *current* use of modern family planning. Respondents were asked if they had ever used family planning; if they answered in the affirmative they were subsequently asked if they were currently practicing family planning, and which method(s) they used. Women who responded that they currently used the pill, injectables, IUD or condoms were considered to be current users of modern family planning. There was not a specific response category for sterilization but some

women responded that they were using an “other” method and listed sterilization under this category. Sterilization is not a main method of contraception among these populations; nonetheless, some sterilized women were missed in this question and we acknowledge this as a limitation. We focus on the use of *modern* family planning because modern contraception is an “innovation” in these rural communities that has diffused within social networks during the past 30 years (citations). Traditional mechanisms of fertility control, particularly for birth spacing, have a longer history in the region and are less likely to be “learnt” through interaction, although one could argue that effective use of traditional methods such as withdrawal could be considered innovative. Unfortunately, the data do not permit us to distinguish between women who have used any form of family planning and women who have used modern family planning when considering ever use.

Key Independent Variables

The key independent variables of interest for our research questions are the respondents’ reports of religious affiliation and religious involvement and the characteristics of the specific congregation they attend, as reported by their religious leader. In 2004, respondents were asked about their religion; based on their response, the interviewer assigned them to one of the following categories: No Religion, Catholic, Quadriya Muslim, Sukuti Muslim, Church of Central Africa Presbyterian (CCAP), Baptist, Anglican, Pentecostal, Seventh Day Adventist, Jehovah’s Witness, Indigenous Christian, Indigenous Non-Christian, and Other. Respondents who answered “Other” were asked to further specify, and their answers were recorded verbatim and were subsequently grouped

into the appropriate category. All respondents were also asked to name the church or mosque to which they belong. Respondents who were missing data on the denomination question were categorized based on information gathered about the church or mosque they most frequently attend. After careful consideration, several denomination categories were collapsed to a total of 6 categories used here in this analysis: Catholic, Muslim, Pentecostal, AIC, Traditional Mission Protestant (i.e., Presbyterian, Anglican, Baptist), New Mission Protestant (Seventh Day Adventist, Church of Christ, Jehovah's Witness).

Attendance at religious services is a reliable and traditional measure of the public and collective expression of religion, and captures involvement in an adult-child moral community across cultures and several religions. Our attendance measure is ordinal and was derived from the questions: "When was the last time you went to church (or mosque)? Respondents could answer with "in the last week," "in the last month," "last 2-6 months," "more than 6 months ago," or "never." The attendance variable has been reverse coded, so larger values correspond with a more frequent pattern of attendance. Because more than 60 percent of the MDICP sample reported having attended religious services within the past week, while just a small fraction reported having attended infrequently, we recoded this variable to range from 1 to 3. Respondents who reported attending religious services in the past two months or less comprise just 10 percent of the sample and were combined into a single category.

Religious involvement is, of course, not limited to attendance at main weekly services. People in rural Malawi participate in other religious activities such as: prayer groups, Bible/Koran study groups, and choir. Respondents were asked: "What other religious activities have you done in the last month?" and were read the response

categories which included: choir, elder's meeting, Bible/Koran study, prayer meeting, visiting the sick, revival meeting, evangelical work, Islamic school/madrasa, other and none. Responses (excluding none) were summed across the categories to create a single variable for number of religious activities. MDICP data is unique in that it is able to capture elements of the unique expression of religious involvement of Muslims as well as that of Christians.

Linking MDICP data from 2004 to the religious leader data collected in 2005, allows for the measurement of associations between individuals and a particular dimension of their social network – their religious congregation (Trinitapoli 2007). Religious leaders were asked about their views on modern family planning – whether or not they believe it is acceptable for a married couple to use a condom for family planning purposes (1=acceptable). If religion shapes fertility decisions through doctrine in a top-down fashion (as in the particularistic theology hypothesis), we would expect women who attend congregations in which the religious leader disapproves of modern contraception to be less likely to report using these methods. If, on the other hand, specific religious doctrine on family planning does not account for observed religious differences, we would look for other explanations of the mechanisms behind the relationship. It is important to note that congregational "effects" may not operate only through the religious leader. Congregation identifiers group women who attend the same congregation together, acting as a rough proxy for the climate of the woman's congregation, which we believe to be a key component of her social network.

We employ a series of control variables that are standard in studies of fertility and contraceptive use, including age, children ever born, years of education, household goods

(a measure of socioeconomic status) and whether they are currently married. We also control for MDICP research site to account for some of the tribal and religious composition difference (see below) across regions as well as unmeasured characteristics likely to differ by site such as family planning program strength. Means, standard deviations, and ranges of all variables are displayed in Table 1.

Analytic Strategy

Before advancing to the results of our analysis, we present a brief introduction to the context of rural Malawi, specifically to our three research sites, giving primary attention to the religious composition of each. In doing so, we provide a descriptive overview of both our analytic sample and the characteristics of religious congregations. Tables 4 and 5 present a series of multivariate models designed to test each of the hypothesis examined here for the outcomes of interest – ever having used contraception and current use of a modern method, respectively. Because we are interested in the associations between congregational-level characteristics and individual-level outcomes, we use Stata's xtlogit command to estimate simple two-level models that take account of the violation of assumptions of independence of observations, as some respondents attend the same religious congregations. We conclude with a discussion of the implications of these findings and draw upon a wealth of relevant qualitative data for these interpretations.

Results

The Setting

The present study examines the relationship between religion and fertility in a particular

setting – rural Malawi. Malawi is a small, landlocked country located in southern Africa between Zambia and Mozambique. According to the UN Human Development Index, Malawi is one of the poorest countries in the world. Despite rapid urbanization in other parts of sub-Saharan Africa, Malawi remains predominantly rural – with 80 percent of the population living on subsistence agriculture. Though the fertility rate in Malawi has declined in recent years (National Statistical Office (NSO) [Malawi] and ORC Macro 2005), overall, fertility remains high even for the region– the average Malawian woman will bear six children during her lifetime – as does infant and child mortality. Knowledge about contraception (traditional and modern) is widespread, and in 2004 27 percent of married rural women were using some form of modern contraception (National Statistical Office (NSO) [Malawi] and ORC Macro 2005). Most contraceptive use is for child spacing rather than limiting the number of children and many women are still hesitant to use modern methods for fear of side effects, the discussion of which is quite common (Yeatman fieldnotes).

Men in rural Malawi are more likely than women to be engaged in paid work and many of them spend time in bars, a space that is almost exclusively male. Subsistence living, on the other hand, generally necessitates that most of women's time is spent in their fields or over a cooking pot. While social interaction does, indeed, occur in these spaces (i.e., fetching water from the borehole, shelling maize, see for example, Watkins 2004), it is generally limited to other women from the same household, compound or village who likely have similar levels of education and similar experiences. In this context, religion provides one of the few social forums in which people of slightly different experiences come together on a regular basis. People often walk for an hour

both ways to attend their church or mosque, which vary in size from 10 persons (1-2 families) to 200, even in rural areas. Outside of religious involvement, there are relatively few other sources of regular social interaction in rural SSA, and this is particularly true for women.

Religious participation in rural Malawi is nearly universal. Fewer than 3 percent of women interviewed in 2004 did not identify with a specific religious tradition (not shown). As evidenced in Table 1, 68 percent of women who identified with a religious faith reported attending religious services during the past week and an additional 30 percent attended in the past month. Religious involvement expands beyond weekly services on Sundays (for most Christians), Saturdays (for Seventh Day Adventists and Seventh Day Baptists) or Fridays (for Muslims) – there are choir groups, prayer groups, study groups, revivals, and regional meetings, in which women interact with other women on a regular or semi-regular basis. Many of these activities (i.e., prayer groups and choir groups) bring rural Malawian women into contact with others who are much like themselves (i.e., share their religious faith, also live within walking distance of the same congregation), however other activities (i.e., regional meetings or revivals) facilitate contact with women who are different in key dimensions -- more educated, employed outside of the home, different denomination,[3] etc.

Table 2 provides a comparison of participation in other (secular) organizations with participation in various religious activities by gender. Next to regular attendance at religious services, farming cooperatives are the most common voluntary association for both men and women. But participation in prayer meetings is a very close second for

[3] though likely belonging to the same religious tradition broadly speaking– like Presbyterian and Holy Cross, both Christian

Table 1: Descriptive Statistics for Variables of Interest, MDICP 2004

Variable	Mean	Std. Dev.	Min	Max	Missing
DEPENDENT VARIABLES					
Ever used family planning	0.55	0.50	0	1	
Currently using modern FP	0.23	0.43	0	1	
RELIGIOUS INVOLVEMENT					
Attendance at regular religious services	2.50	0.68	1	3	5
Extracurricular religious activities	1.04	1.26	0	7	
Religious leader approves of modern FP	0.78	0.41	0	1	38
DENOMINATION					
Catholic	0.15	0.35	0	1	
Traditional Mission Protestant	0.22	0.42	0	1	
Pentecostal	0.10	0.29	0	1	
African Independent Church	0.16	0.37	0	1	
Muslim	0.27	0.44	0	1	
New Mission Protestant	0.11	0.31	0	1	
LOCATION					
Central site	0.33	0.47	0	1	
Southern site	0.32	0.47	0	1	
Northern site	0.34	0.48	0	1	
DEMOGRAPHIC VARIABLES					
Age	31.00	7.93	15	45	
Widowed/Divorced	0.38	0.45	0	1	
Living children	3.50	2.09	0	10	
SOCIOECONOIC VARIABLES					
Household goods	5.05	2.30	0	13	
Years of school	4.41	3.33	0	12	

N=1096

women – over 25 percent participate, far more than participate in any other type of secular voluntary associations. Some of the most religiously involved women attend elders meetings, choir groups, and study groups on a regular basis. Overall, 58.96% of MDICP women participate in at least one of these "extra-curricular" religious activities.

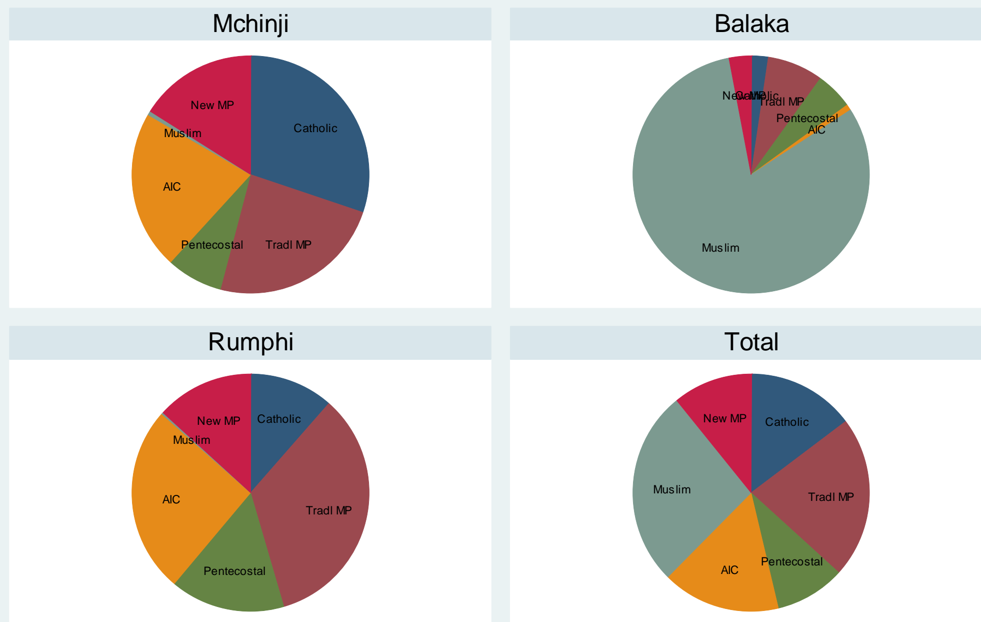
Malawi is an ethnically, linguistically, and religiously diverse country, and this diversity is well represented by the MDICP's three research sites: Balaka in the South is predominantly Yao, Mchinji in the Central region is dominated by Chewa, and Rumphi

Table 2: Involvement in Secular and Religious Activities, MDICP 2004

		Participation, %	
		Women	Men
Non-Religious	Farming cooperative	27.2	47.2
	Health group	7.9	14.1
	AIDS group	3.7	10.8
	Credit group	4.0	4.4
Religious	Weekly attendance	61.9	65.3
	Prayer meeting	26.8	28.6
	Visit sick	25.9	22.8
	Elders meeting	14.7	18.8
	Choir	13.6	11.3
	Bible/Koran study	9.3	14.1
	Revivals	8.9	10.3
	Evangelism	7.3	11.3
	Madrassa	1.4	1.2
	N	1628	1209

in the North is mostly Tumbuka. Figure 1 uses data from women in the 2004 MDICP to illustrate the religious makeup of rural Malawi as a whole and of each of our three research sites. In Balaka, Muslims are a clear religious majority, followed in descending order by Catholics, Mission Protestants (primarily Presbyterian and Anglicans), and Pentecostals. Only a small number of respondents reported belonging to one of several African Independent Churches in this region or to so-called New Mission Protestants. There is no clear religious majority group in Mchinji, which is inhabited by roughly equal numbers of: Catholics, AICS, Pentecostals, and Mission Protestants. Not surprisingly, Mission Protestants comprise the majority in Rumphi, which is located near Livingstonia – the epicentre of missions to Central Africa during the 19th century.

As illustrated in Table 1, the use of family planning among rural Malawian women is widespread, with 50 percent of ever married women reporting having ever used family planning and 23 percent reporting current use. Table 3 shows that support for modern family planning is also high among religious leaders, with nearly 80 percent of



religious leaders saying that the use of modern family planning is acceptable. As we would expect, Catholic religious leaders are the least likely to endorse (or tolerate) this scenario; however, they are not significantly different from Mission Protestant leaders (i.e., Anglican and Presbyterians), who are under no such directive. Modern family planning is almost universally considered acceptable by Pentecostal and Muslim leaders.

Table 3: Religious Leader Approval of Modern Family Planning, MRP 2005

	Modern FP Acceptable, %	N
Catholic	65	20
Traditional Mission Protestant	66	38
Pentecostal	90	31
African Independent Church	84	38
Muslim	91	22
New Mission Protestant	74	34
Total	78	183

The specific hypotheses are tested through a series of multivariate logistic regression models. As shown in Model 1 of Table 4, Muslim women are somewhat less likely than women of other denominations to have ever used contraception; however the addition of socio-demographic controls in Model 2 shows that this difference is attributable to compositional differences between religious groups. This finding garners partial support for the characteristics hypothesis. Consistent with the wealth of literature on family planning, age, number of children ever born, wealth (measured by an index of household goods), and education are positively associated with family planning. Net of socio-demographic characteristics, family planning is less widely practiced in Rumphi, our northernmost research site, compared with Mchinji. The addition of two measures of religious involvement in Model 3 – attendance at religious services and involvement with other religious groups – reveals no significant associations. Because Agadjanian's study found that social interaction was particular to certain groups in the urban Mozambican setting, we test interaction terms between religious activities and denomination (in Model 4), however we find that these are insignificant as well with the exception of a weak negative association between religious involvement and family planning use for New Mission Protestants that will become more pronounced when looking at current use. The combination of findings from Models 3 and 4 suggest the socialization hypothesis does not give a compelling explanation for variation in family planning use. Finally, in model 5 we find a positive association between the religious leader's view on modern family planning and the likelihood that a woman reports having used family planning. Compared to women who attend congregations in which the leader says that modern family

Table 4: Exponentiated Regression Coefficients (Odds Ratios) Predicting Ever Use of Family Planning, MDICP 2004

	Model 1	Model 2	Model 3	Model 4	Model 5
Denomination (vs Catholic)					
Traditional MP	0.93	0.83	0.82	1.03	1.25
	(0.23)	(0.22)	(0.22)	(0.36)	(0.45)
Pentecostal	0.81	0.84	0.83	1.07	1.04
	(0.24)	(0.26)	(0.26)	(0.45)	(0.44)
AIC	0.73	0.79	0.79	1.13	1.17
	(0.19)	(0.22)	(0.22)	(0.41)	(0.42)
Muslim	0.66 +	0.73	0.73	0.97	1.01
	(0.17)	(0.27)	(0.27)	(0.40)	(0.41)
New MP	1.07	1.11	1.10	1.82	2.04 +
	(0.31)	(0.33)	(0.33)	(0.73)	(0.81)
Age (25-34)		1.56 *	1.52 *	1.53 *	1.51 *
		(0.29)	(0.28)	(0.28)	(0.28)
Age (35+)		0.99	0.98	0.99	0.98
		(0.22)	(0.22)	(0.22)	(0.22)
Children Ever Born (alive)		1.28 **	1.29 **	1.29 **	1.28 **
		(0.06)	(0.06)	(0.06)	(0.06)
Household Goods		1.09 **	1.09 **	1.09 *	1.08 *
		(0.04)	(0.04)	(0.04)	(0.04)
Secondary Education		1.10 **	1.10 **	1.10 **	1.11 **
		(0.03)	(0.03)	(0.03)	(0.03)
Previously Married		0.98	0.96	0.97	0.97
		(0.15)	(0.15)	(0.15)	(0.15)
Balaka		1.12	1.10	1.13	1.02
		(0.35)	(0.34)	(0.35)	(0.32)
Rumphi		0.52 **	0.51 **	0.51 **	0.49 **
		(0.11)	(0.11)	(0.11)	(0.11)
Attendance at Religious Services			1.11	1.11	1.10
			(0.11)	(0.11)	(0.11)
Religious Activities			0.97	1.18	1.17
			(0.06)	(0.16)	(0.16)
Traditional MP * Religious Activities				0.84	0.80
				(0.14)	(0.14)
Pentecostal * Religious Activities				0.82	0.85
				(0.17)	(0.17)
AIC * Religious Activities				0.75	0.76
				(0.14)	(0.14)
Muslim * Religious Activities				0.73	0.75
				(0.18)	(0.18)
New MP * Religious Activities				0.66 +	0.68 +
				(0.15)	(0.15)
Leader approves of modern FP use					1.72 **
					(0.34)
Log Likelihood	(746.04)	(706.77)	(703.00)	(700.61)	(675.15)
Chi-Squared	5.55	75.02	76.47	79.62	79.70
N	1096	1096	1091	1091	1053

+ p<0.10 *p<0.05 **p<0.01

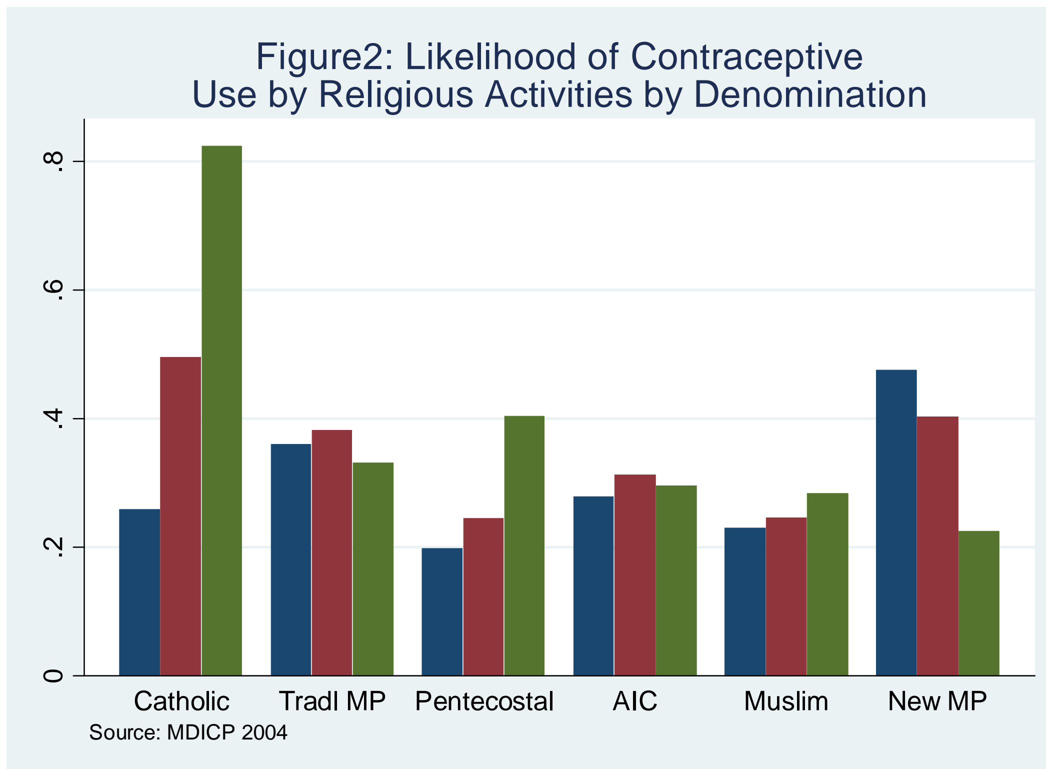
planning is unacceptable, women in congregations led by individuals who accept modern family planning are 72 percent more likely to report having contracepted.

Table 5 reveals that the relationships between religion and current use of modern contraceptives differs substantially from those of ever use. The baseline model finds that both Muslims and Pentecostals have reduced odds of current use of modern contraception. However, as in Table 4, Muslim differences disappear and Pentecostal differences are weakened with the addition of socio-demographic measures. Model 3 shows a weak association between religious attendance and current use of modern contraception and no association between other religious activities and modern contraception. However the interaction terms introduced in Model 4 reveal significant denomination-specific associations between “extra-curricular” religious involvement and contraceptive use. This association, positive overall, is strongest for Catholics (reference group) and weakest for Mission Protestants, particularly New Mission Protestant for whom the association operates in the opposite direction. Figure 2 provides an illustration of the relationships indicated by the denominational interaction terms. Unlike ever use of family planning, religious leaders’ approval of modern family planning is unassociated with women’s current contraceptive behavior.

Table 5: Exponentiated Regression Coefficients (Odds Ratios)
Predicting Current Use of Modern Contraception, MDICP 2004

	Model 1	Model 2	Model 3	Model 4	Model 5
Denomination (vs Catholic)					
Traditional MP	0.86	0.75	0.74	1.09	1.27
	(0.21)	(0.21)	(0.20)	(0.41)	(0.50)
Pentecostal	0.57 +	0.59	0.58	0.70	0.72
	(0.18)	(0.20)	(0.20)	(0.34)	(0.36)
AIC	0.71	0.77	0.77	1.15	1.20
	(0.19)	(0.22)	(0.22)	(0.45)	(0.47)
Muslim	0.56 *	1.32	1.42	1.97	2.04
	(0.14)	(0.57)	(0.63)	(0.97)	(1.00)
New MP	0.93	0.96	0.96	1.78	1.91
	(0.26)	(0.29)	(0.29)	(0.75)	(0.81)
Age (25-34)		1.32	1.28	1.28	1.19
		(0.28)	(0.27)	(0.28)	(0.26)
Age (35+)		0.66	0.64	0.66	0.65
		(0.18)	(0.18)	(0.18)	(0.18)
Children Ever Born (alive)		1.19 **	1.20 **	1.20 **	1.20 **
		(0.06)	(0.06)	(0.06)	(0.06)
Household Goods		1.07 +	1.06	1.05	1.05
		(0.04)	(0.04)	(0.04)	(0.04)
Secondary Education		1.13 **	1.14 **	1.14 **	1.14 **
		(0.04)	(0.04)	(0.04)	(0.04)
Previously Married		0.67 *	0.63 *	0.64 *	0.63 *
		(0.13)	(0.12)	(0.12)	(0.12)
Balaka		0.63	0.63	0.65	0.61
		(0.24)	(0.24)	(0.25)	(0.24)
Rumphi		0.64 +	0.62 *	0.64 *	0.62 *
		(0.15)	(0.14)	(0.15)	(0.14)
Attendance at Religious Services			1.23 +	1.24 +	1.22
			(0.15)	(0.15)	(0.15)
Religious Activities			1.02	1.26 +	1.26 +
			(0.07)	(0.16)	(0.16)
Traditional MP* Religious Activities				0.77	0.72 +
				(0.13)	(0.13)
Pentecostal * Religious Activities				0.88	0.88
				(0.19)	(0.19)
AIC * Religious Activities				0.76	0.76
				(0.15)	(0.15)
Muslim * Religious Activities				0.79	0.79
				(0.22)	(0.22)
New MP*Religious Activities				0.61 *	0.61 *
				(0.15)	(0.15)
Leader approves of modern FP					1.19
					(0.25)
Log Likelihood	(593.69)	(566.57)	(558.28)	(555.65)	(533.64)
Chi-Squared	8.19	55.93	59.24	63.70	59.98
N	1096	1096	1091	1091	1053

+ p<0.10 *p<0.05 **p<0.01



Discussion

Despite research in different SSA contexts that has found denominational differences, our research from rural Malawi finds little evidence for such differences in contraceptive use, and suggests other avenues for further inquiry in this area of research. In support of the characteristics hypothesis, many of the denominational differences that do exist can be explained by demographic and socioeconomic differences between denominations.

We find some support for the socialization hypothesis in explaining current contraceptive behavior. Apart from Mission Protestants, women who are more involved in their congregation through attending regular services or other religion-based activities are more likely to currently use modern methods of family planning. “Extra-curricular” religious activities such as choir and visiting the sick are largely divided by sex and may create an environment where women can share ideas and stories about a range of

religious and non-religious topics. Earlier findings from the region suggest that women often engage in repeated discussions about family planning topics before drawing their own conclusions (Rutenberg and Watkins 1997; Soldan 2004). Religious services and related activities provide the draw that continues to bring women together so that these discussions and subsequent conclusions can be made.

It is also possible that the relationship operates to some extent in the reverse direction. Women who are continually pregnant or have closely spaced children are less likely to have the time to attend religious services or activities. As one Muslim woman interviewed as part of the Malawi Religion Project stated: “When you practice family planning, you have a lot of time for meetings”.

Qualitative data and our knowledge of the Malawian religious context allows us to offer some tentative explanations for the fact that the relationship between religious involvement and contraceptive use operates in the opposite direction for members of one particular category of religious group - New Mission Protestants. New Mission Protestants belong to a second “wave” of missions to SSA, which occurred during the later part of the 19th and early 20th centuries. In Malawi, the dominant groups belonging to this category are: Church of Christ, Seventh Day Adventist and Jehovah’s Witnesses. Although none of these groups have official prohibitions against modern contraception, they are very family centered. They consider themselves and are considered by others to be minorities in their communities. Their position may be comparable to that of Mormons in the United States. The combination of these factors may lead women who are very involved in these religious sub-cultures to have a stronger "multiply like sand" mentality

than others. If there is such a belief, our findings suggest that it is more likely to be coming from the female congregants themselves than from the preachers.

These divergent findings for ever use of family planning and current modern use are the function of the particular measures employed here. As mentioned earlier, there is of course a difference between modern use of family planning and use of more traditional methods. Modern methods represent innovations over the past decade for women in rural Malawi and knowledge of them is likely to be socially learned in a more heterogeneous environment (compared to a family compound) such as women's groups. This might explain why religious socialization mattered for current use of modern contraception but not for ever use of family planning.

Temporal order is also an important concern here. Measurement of religious activities and current use correspond to the same period of reference. If a woman's participation in religious activities is changing, we would not expect current religious characteristics (affiliation, involvement, or leader attitudes) to necessarily be associated with ever use of family planning.

What about specific religious teachings on contraception? Qualitative data from rural Malawi suggest that there is little denominational difference in the doctrinal teachings about family size and family planning that come from the pulpit. Despite the majority of religious leaders responding that they support family planning use, in 90 percent of the sermon reports collected from a subsample of these congregations, family size and contraception were never mentioned. Additionally, in in-depth interviews with 111 women from different congregations, women of all denominations stated that there

was little place for discussion of family planning during regular services and that their leaders never talked about "topics like that".

It is not surprising that religious leaders in the heart of the AIDS epidemic find other things to talk about. Nor is it necessarily surprising that nearly 80 percent of religious leaders from across the denominational spectrum stated that they approve of family planning or that 12 percent say that it is acceptable for a woman to leave her husband if he does not let her use family planning (Trinitapoli 2007). What is surprising, however, is that congregational variation in attitudes toward family planning does not fall primarily along denominational lines. While some denominations might be technically hierarchical in nature, in this context many of these ostensibly hierarchical churches and mosques are really quite isolated. For example, only 64 percent of the churches and mosques in the MRP sample had ever been visited by denominational leaders. Across denominations religious leaders are neither encouraging women to “multiply like sand” nor promoting modern contraceptive use from the pulpit. Nonetheless, we find that how religious leaders feel about modern family planning is strongly associated with the family planning use of women in their congregation. It is difficult to tell from this analysis whether these findings reflect private counsel that leaders provide for their members where such issues as childbearing and family planning may be discussed or simply that religious leaders in rural Malawi are first and foremost members of their communities and share the beliefs of other members of the community more than the beliefs of their bishop, or the Vatican. Still, the lack of denominational differences does not allow us to discount the particularistic theology hypothesis in explaining religious variation in ever use of family planning, as significant differences *by congregation* did emerge.

Overall, our analyses find support in this setting for three of the main hypotheses proposed for better understanding the relationship between religion and fertility.

- Characteristics hypothesis – denominational differences are not critical.
- Particularistic theology hypothesis – not in the way we would expect.
- Socialization hypothesis – yes and it may matter more for members of some groups than others.

To the extent that religion does influence reproductive behavior such as family planning and contraceptive use, we have a lot to learn about how and why. Perhaps most important when trying to understand this complicated relationship, is to remember that no one mechanism operates in isolation. Rather, denominational and congregational characteristics shape the nature of social interaction, what is said in the pulpit influences conversations that take place outside the congregation walls, and the socio-demographic composition of a congregation shapes what is said inside those walls. Rather than competing against one another, these driving mechanisms are interacting with one another to shape reproductive discussion, norms and behavior. Religion in rural Malawi may not be the most fundamental determinant of reproductive behavior, but it provides part of the opportunity, the fodder and the context within which such decisions are often made.

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