The Christian-Muslim Gap in the Sub-Saharan Fertility Transition

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Introduction

The study sets out to examine Christian-Muslim differentials in contraceptive use and fertility in sub-Saharan countries with adequate DHS data and discusses the implications of these differentials for the sub-Saharan fertility transition.

Although religion is often mentioned in reference to fertility and fertility regulation, no systematic and consistent evidence has yet emerged. The diversity of religious traditions in different societies greatly complicates the study of this relationship. The quest for the roots of this relationship typically starts with a scrutiny of the religious doctrine. This quest, however, is usually brief and unsuccessful: most religious teachings, formulated well before fertility regulation became a conceivable individual option and a pressing public concern, are ambiguous on reproductive matters allowing for a wide range of interpretations.

The frustration with the "theological" perspective quickly moves researchers in the opposite direction—that of the so-called "characteristics" hypothesis. This hypothesis posits that the religion-fertility relationship is entirely due to other factors associated with religion but are not rooted in religious doctrine per se. This view is particularly common in demography whose methodological apparatus offers seemingly straightforward and convincing ways to identify and control for such factors. The "characteristics" assumption is the most influential in demographic studies and is implicitly present even in analyses that do not manage to efface the statistical effect of religion through multivariate exercise: because any residual effect remains substantively unexplained, it is implied that it owes to some other factors that could not be identified from the data.

The "minority-status" perspective, which is often proposed as another heuristic alternative, can also be seen as an offshoot of the "characteristics" hypothesis. This perspective looks for answers in the socio-political status of religious (or ethnic) groups and the influence of this status on the groups' fertility strategies and choices. Testing this hypothesis, especially with demographic data, presents a major challenge as a religious group's socio-political position is often difficult to define and disentangle from the socioeconomic and ethnocultural factors that are usually considered under the "characteristics" perspective.

Research on the religion-fertility relationship in sub-Saharan Africa has illustrated this conceptual uncertainty. Most of these studies have looked at individual countries and single cross-sectional datasets, without linking fertility levels to contraceptive use. Much of this research has focused on Muslims. Several studies have noted that Muslims' fertility in sub-Saharan Africa tends to be lower than that of non-Muslims—contrary to the pattern typically observed in other regions; Other studies, however, furnish evidence to the contrary (Bailey 1986; Gaisie 1972; Karim 1997; Kollehlon 1994; Sembajwe 1980). Yet, no convincing arguments have been proposed to explain and reconcile these conflicting findings.

Whatever Muslim-Christian fertility comparisons have been attempted in sub-Saharan Africa have been usually cast within the "characteristics" paradigm—mainly because the other perspectives appeared ill-suited to explain the observed patterns. Thus, Islamic teachings do not offer any unequivocal position on fertility and fertility regulation; Christian denominations, despite the Catholic Church's general disapproval of contraception, are in practice tolerant and even supportive of family planning. At the same time, approaching the evidence from the minority-status perspective has faced insurmountable methodological difficulties.

Theoretical premises and hypotheses

If the spread of family planning is to be viewed as part of Africa's integration into the global socio-cultural system defined on the basis of western values and technologies, Christians are to be expected to display greater affinity toward fertility control and contraceptive use than are Muslims. Yet, Muslims' lesser access or greater resistance to these western innovations is not a given. It is predicated on the political and historical context in which both Muslims and Christians exist: where historically Muslims have been marginalized—practically or symbolically—on the political arena, their access to fertility limitation may be more constrained and/or resistance to it may be stiffer; on the contrary, in settings where no historical barriers to Muslims' integration into the colonial and later independent body politic have existed, their disadvantage should be less visible. These factors may affect the Muslim-Christian differentials directly, i.e., through attitudes and access to contraceptives, and indirectly, by influencing age at marriage, post-partum abstinence, women's access to education, and a host of other conditions pertaining to women's status.

This conceptual approach has important implications for theorizing the role of religion in fertility. Religion is no

longer a competing explanation for fertility behavior and change; instead it is part of the historico-social context that constraints individual behavior. Accordingly, the three competing theoretical perspectives on religion and fertility become mutually complementary and even enriching: religious teaching affect "other characteristics," while these characteristics influence the way religious teachings are perceived and implemented. Likewise a religious minority's position in society is closely related to its other characteristics and the type and strength of religious doctrine and individuals' adherence to this doctrine.

This holistic and context-grounded approach guides this study, although inevitably in such a broad overview constrained by data limitations many important country-specific details of fertility-religion associations cannot be addressed.

Data and methods

Data

This study uses publicly available women's files from Sub-Saharan Demographic and Health Surveys. Demographic data impose major restrictions on studies of the religion-fertility relationship, and this study is no exception. As most such studies, this comparison relies on religious affiliations as the only marker of religion, leaving outside the complex gamut of religious commitment and participation. Yet, although the religion-related information in DHS is limited to one question on religious self-identification, the richness of reproductive and contraceptive details and the comparability of the DHS data across countries and time offer a unique opportunity to explore religious differences in contraceptive choices and fertility outcomes in different sub-Saharan settings.

This study is limited to DHS datasets in which the two religious groups of interest—Christian and Muslims—are clearly identified. The analysis is restricted to ever-married women and looks at standard contraceptive and fertility indicators—use of any contraceptive method at any time; use of a modern method at any time; current use of any method; current use of a modern method; number of children ever born, and religion-specific total fertility rates.

This study is also limited to countries where both groups of interest—Christians and Muslims are clearly identified in the data. This excludes most countries where Muslims are a tiny minority (Southern Africa) or, on the contrary, Muslims almost completely dominate (the Sahel). In most remaining countries

where at least one DHS was conducted the Muslim segment of the population is smaller than the Christian one.

Finally, by definition the study excludes people who do not declare affiliation with either world religion, which in some countries appear to be a large portion of the population.

Most comparisons in this study are limited to ever married women. Constructed on the basis of the DHS standard questions, "ever-married women" are an ample category: it includes all women who report having lived permanently with a man regardless of the type of marital union. We exclude never married women because their childbearing and especially contraceptive behavior are likely to be misreported and are often driven by a different set of factors than those of women who have been in a marital union. The exclusion of never-married women should also help to obtain more conservative estimates of religious differentials because for reasons rooted in religion-sanctioned gender ideology and other social norms Christian women would have a much higher level of premarital fertility than would Muslim women. However, because childbearing among never-married women in sub-Saharan Africa is still a tiny fraction of all childbearing, this restriction would not bias the overall picture.

It must be acknowledged from the outset that Christians are a diverse group, and denominational differences may play a big role in fertility and contraceptive patterns as literature on the US and other settings suggests (e.g., Addai 1999; Agadjanian 2001; 2003; Avong 2001; Berhanu 1994; Goldscheider and Mosher 1991; Gregson et al. 1999; Mosher et al. 1992). Yet, the DHS do not always allow one to distinguish among different types of Christian denominations, especially differences within Protestants. Islam in sub-Saharan Africa is, of course, not uniform either, and treating Muslims as one group is admittedly problematic. However, the internal heterogeneity that cannot be accounted for in this study should not derail the study's main objective: to paint and explore the big picture of Christian-Muslim differentials.

Methods

We start by presenting and discussing the relative size and spatial distribution of Muslims and Christians and their general socio-demographic characteristics in the selected countries that may be relevant to fertility—such the age at first marital union and educational level. We then consider fertility and

contraceptive differentials starting with comparisons of total fertility rates, number of children ever born, and contraceptive prevalence rates. We then move on to more refined, multivariate comparisons of parity and contraceptive use. Finally, we look at religious differentials in fertility preferences focusing on the intention to have no more children. Logistic regression for binomial outcomes is employed for the analyses of contraceptive use and fertility preferences and Poisson regression is employed for the analysis of the number of children ever born. The analyses of contraceptive use control for such sociodemographic characteristics as age, parity (number of living children, in current-use models and fertility preferences), education, area of residence, work, material conditions, and current marital status (not married, married monogamously, or married polygynously). The analysis of parity also controls for age at first marital union.

Results

Christian-Muslim demographics

Table 1 presents selected sociodemographic characteristics of Muslims and Christians in the countries under consideration. In all the countries, save Burkina Faso, Christians outnumber Muslims. The ratio of Muslims to Christians ranges from as low as .04 in 1989 Kenya DHS to as high as 2 in 1998 Burkina Faso DHS. For countries with more than one DHS we get an idea about trends in the relative size of the two religious groups. In West Africa, the number of Muslims relative to that of the Christian population increased in Cote d'Ivoire and Burkina Faso, decreased in Togo, Benin, Nigeria, and Cameroon, and remained fairly stable in Ghana. Notably, most variation in the relative sizes of the two groups was due to considerable changes in the share of Christians; in comparison, changes in the share of Muslims were, in most cases, rather small. East African countries with multiple DHS display greater stability in the relative size of both groups; in all of these countries, however, the Muslim-Christian ratio registered a slight increase.

Table 1 about here

It is, of course, impossible to separate the demographic growth component of these changes from conversions since no data on conversion are available. The use of DHS data for population estimates is in itself problematic, and data with considerable changes in the religious composition (mainly in the size of Christians) are particularly suspect. Yet one has to keep in mind that for most, if not all of these countries, DHS

statistics on religious affiliation are the best—or at least, the most impartial—data available.

Muslims and Christians do not just differ in size; they are also spatially separated, reflecting both the historical patterns of both religions' penetration into Africa and a correlation between ethnicity and religion. One simple way to assess these spatial patterns is by constructing the index of dissimilarity (ID)—a measure of segregation defined on the basis of regional distribution of Christians and Muslims recorded in the DHS data files. Because the regional classification used in different countries is far from uniform, the IDs that we are able to calculate from the DHS are not fully accurate and comparable but they nonetheless provide a good sense of the degree of countrywide religious segregation. The ID values are presented in Table 1: the higher the value on the scale between 0 and 1, the greater the degree of countrywide segregation. The values of ID vary from a (suspiciously) very low .08 in Liberia to around .70 in the late 1980s-early 1990s in Nigeria, Cameroon, and Kenya. In most countries with multiple DHS the IDs tend to decrease over time or to remain unchanged; no clear regional patterns emerge.

The fertility literature typically points to women's education as a major determinant of fertility change. The educational differences between Muslims and Christians in sub-Saharan Africa are impressive (Table 1). In all countries, with the exception of Uganda, Muslims are at a disadvantage. The gap in the mean number of school years completed is particularly large in Nigeria and Cameroon, although the religious gap tended to narrow somewhat between the earlier and later DHS, as it did in all other countries. Once again, however, the biggest contrast is between West and Central Africa, on the one hand, and East and Southeast Africa, on the other. In the latter the religious gap in education is generally much smaller and in Uganda the educational levels of Muslims and Christians are statistically indistinguishable.

Among proximate determinants of fertility religious differences are likely to manifest themselves in age at the onset of exposure to the risk of conception. Table 1 presents religion-specific mean ages at first marriage, a proxy for the start of childbearing career (reports on age at first intercourse seem much less reliable). As one could expect based on the educational differences, Muslims consistently marry earlier than Christians, and the gap generally persists over time, even though the age at first marriage among both Muslims and

Christians has been rising steadily. Again, the gap is particularly wide in Nigeria and Cameroon, largely because of a very early age at first marriage among Muslims in these two countries.

Total fertility rates

Religion-specific total fertility rates are presented numerically in Table 1 and graphically in Figure 1. The regional pattern of religion-specific TFRs merits attention. Thus in most Western and Central Africa, Muslims have higher TFRs than Christians. The most conspicuous—and suspicious—exception is Liberia, the country of the first ever DHS, where the Muslim TFR is almost three times lower than the Christian TFR. In East Africa and Southeast Africa the excess of Christian fertility is a predominant pattern with Malawi being the only clear exception. While TFRs of both Christians and Muslims tended to decline in almost all countries in which more than one DHS was conducted, the differences between Muslims and Christians persisted in most of them. In East Africa the excess of Christian total fertility tended to diminish in Kenya, reversed itself in Uganda, but appeared to increase in Tanzania. In West and Central Africa the changes were not uniform either: the excess of Muslim total fertility increased in Cote d'Ivoire, Nigeria and Cameroon, decreased to reverse itself in Burkina Faso, somewhat decreased in Togo and Benin, and remained practically unchanged in Ghana.

Figure 1 about here

Figure 2 relates the differences between Muslim and Christian TFRs (expressed as TFR ratios) to the trends in country-level TFRs. The TFR ratio tends as the TFR declines, suggesting that overall Muslim fertility declines less rapidly than that of Christians, even though the tendency is not very strong.

Figure 2 about here

As an indirect and formal test of the minority-status thesis we can examine how religious differences in TFR are related to the relative share of the group in a country's population. Figure 3 plots the Muslim/Christian TFR ratio by the Muslim/Christian population ratio. (Although the population's religious composition remains relatively stable over time, we include all available country-years to visualize possible country-year variations.) The graph suggests that as the proportion of the Muslim minority rises, the TFR ratio rises too. However, when Muslims and Christian become a majority, as in Burkina Faso, the

differences seem to diminish again diminish, although this "reversal" should not be extrapolated to countries with even larger Muslim majorities.

Figure 3 about here

Multivariate analysis of children ever born

Table 2 presents the estimates for Muslims (relative to Christians) of Poisson regression models for the number of children ever born. In Togo and Benin, two small, demographically and historically similar adjacent countries, the multivariate results conform to the differences in TFRs: Muslims, ceteris paribus, have more children than Christians. In Ghana and Côte d'Ivoire, two other neighbors, Muslim–Christian differences disappear after controlling for other factors. Finally, in the remaining countries—as diverse as Nigeria, Liberia, and the CAR, Muslims tend to have fewer children after controls are added, and only for Liberia this trends conforms to the TFR differentials. These patterns are very similar in rural and urban areas (not shown).

What factors primarily account for the disappearance of the Muslim excess of births or for its reversal in some cases in West and Central Africa? Age at marriage is one: as we saw earlier, Muslims tend to marry much earlier than do Christians (Muslims are also much less likely to have premarital births, although this component of fertility is largely beyond the scope of this paper focused on fertility of ever-married women The earlier observed lower levels of Muslims' education is another strong intervening factor.

In most East/Southeast Africa Muslim women tend to have significantly lower fertility, controlling for other factors. Only Uganda in 1995 displays the opposite trend. Muslims' deficit of births seems to diminish over time in Kenya and Tanzania. One striking difference from West/Central Africa is that the tendencies detected in multivariate tests closely parallel the TFR differentials, which largely owes to much smaller educational differences than in West and Central Africa. In most East/Southeast African countries, Muslims also tend to have significantly longer birth intervals (Table 2), although this is also the case for Uganda 1995, where the effect of religion on number of children ever born bucks the regional trend. Again, as in West and Central Africa rural–urban variation in religious parity differentials are minimal (not shown).

Contraceptive use

The DHS do not collect complete contraceptive history and therefore linking parity and contraceptive use directly is not possible. Yet this connection is central to fertility transition. Contraceptive prevalence in sub-Saharan countries remains lower

than in most of the less developed world but it has been rising almost in all of them, as the DHS evidence suggest. Although most of the changes are driven by the use of modern methods, some West African DHS detect very high prevalence of natural and indigenous contraception (although the reporting of traditional contraception may be less accurate than that of modern methods).

Religious differences in contraceptive prevalence rates

Figures 4 and 5 depict current contraceptive prevalence rates among ever-married Christian and Muslim women for all methods and modern methods, respectively. In all West and Central African countries Muslims have lower levels of overall contraceptive use, and in some cases (e.g., Nigeria, Cameroon) the religious differentials are very pronounced. The same pattern emerges when we look at the use of modern methods only: again in all West-Central Africa Christians have higher rates, with the exception of the Central African Republic, a country on the geographic margins of the region, where Muslims seem slightly ahead of Christians. The religious differentials tend to persist or only slightly decline over time in countries where more than one DHS was conducted.

Figures 4 and 5 about here

The picture in East and Southeast Africa is less consistent. While Kenya, Mozambique, and Malawi are similar to West-Central Africa in that Christians have higher modern contraceptive rates, in Tanzania and Uganda Muslims are at least as likely to use contraception as Christians. In fact, Tanzanian Muslims' advantage in the use of modern methods seems to widen over time and in Uganda the same is true of any method use.

Yet, in both regions, the Christian-Muslim differentials tend to decline as contraceptive prevalence rises. This trend is illustrated in Figures 6 and 7 that plot the Muslim/Christian contraceptive odds ratios (unadjusted) against the prevalence of all and modern contraceptive methods, respectively.

Figures 6 and 7 about here

The regional differences are also illustrative. In West/Central Africa, as contraceptive prevalence rises, the Muslim disadvantage decreases in all methods. However, in modern methods alone the trend is less clear. In East/Southeast Africa, the all-method trend is in the opposite direction, which also suggests convergence as the Muslim advantage, where present, is eroded with the rise of overall contraceptive prevalence. The crossover is more potent with respect to modern methods, as the Muslim advantages turns into a disadvantage.

As with TFRs, we look at a possible association between the relative sizes of each religious community and their contraceptive prevalence. One way to assess the relevance of minority-status hypothesis is by examining the association

between religious differentials in contraceptive prevalence and the religious structure of the population. Figures 8 and 9 plot the Muslim/Christian odds ratios in all-methods and modern-methods use against the proportion of Muslims in the population (a "minority" in all the examined countries but Burkina Faso). A trend, albeit a weak one, indeed emerges: the higher the share of Muslims the greater their contraceptive "disadvantage." (The trend would have probably been more pronounced had we been able to include countries where Christians are a small minority.) Interestingly, the trend seems particularly strong in West/Central Africa.

In addition to the relative size of the two religious groups, one can also look at their spatial distribution. Although the roots and shapes of spatio-cultural configurations of Muslim and Christian populations are country-specific, one can argue, in the spirit of diffusionist arguments, that the more religiously segregated a context is, the greater contraceptive differentials between Muslims and Christian would be. Figure 10 plots the Muslim/Christian contraceptive odds ratios against the corresponding values of the index of dissimilarity. The graph suggests that Muslim disadvantage increases with greater segregation. This trend is most pronounced in East-Southeast Africa, although the small number of data points calls for caution in interpretation.

Figure 10 about here

Multivariate analysis of contraception

To isolate the net effect of religion differentials on contraceptive use, we again controlled for available socio-demographic characteristics. Table 2 reports the Muslim/Christian odds ratios (adjusted for controls) for any-method current use. Figure 11 depicts them graphically. The "disadvantage" of Muslims in West Africa is overwhelming: only in Togo and Ghana, two neighboring countries, the odds ratios are not significant. In the other countries the differences are strong and tend to increase over time; the widening of the Muslim-Christian gap is particularly noticeable, again, in Nigeria and Cameroon.

Figure 11 about here

In East and Southeast Africa the Muslim disadvantage is generally less pronounced and the temporal pattern is somewhat more erratic. Thus the Muslim-Christian differential is significant in the first Kenya's DHS but disappears in the subsequent two. In Tanzania, on the contrary, only the latest DHS attests to any Muslim "disadvantage." Finally, Uganda is the only country where Muslims are marginally ahead of Christians in any-method contraceptive prevalence, controlling for other factors.

When we look at modern methods only (Table 2 and Figure 12), the net religious differentials diminish considerably. Yet, in Nigeria, Benin, and Cameroon they tend to increase over time. The

puzzling (and suspicious) advantage of CAR Muslims, already observed at the bivariate level, remains marginally significant; the same advantage of Tanzania's Muslims is confirmed only for the 1996 DHS.

Figure 12 about here

Contraception and fertility

While the negative association between contraceptive levels and fertility rates is generally seen as a sign of contraception's aggregate effect on fertility, it has been also noted that this association is less pronounced in sub-Saharan African than in the rest of the developing world (Westoff and Bankole 2001). Figures 13 and 14 depict the association between modern methods prevalence and TFRs for both regions and both religious groups. As we can see, the expected negative association is weakest among Muslims of West/Central Africa. In comparison, East/Southeast African Muslims display a very similar pattern to that of Christians (although the small number of data points again cautions against overgeneralizations).

Figures 13 and 14 about here

Fertility preferences

Although fertility preferences as sub-Saharan women state them in surveys are not likely to be fully implemented, there is strong evidence that these preferences are predictive of fertility outcomes and are critical for fertility change (Bankole 1995; Bankole and Westoff 1998; Pritchett 1994). It may therefore be instructive to compare these preferences among Muslims and Christians. The intention to have no more children seems the most straightforward of all the standard battery of DHS fertility preference measures; it is also believed to predict subsequent fertility better than other measures (Hermalin et al. 1979; Lightbourne 1985; Rodgers 1976). Here it is formulated as a dichotomy: wishing to stop childbearing vs. wishing to continue or being undecided. Table 2 presents Muslim/Christian odds ratios, adjusted for the number of living children and other controls. (The odds ratios are also depicted in Figure 15) Christians are overwhelmingly more likely than Muslims to wish to end childbearing (occasional deviations from this pattern, as in the case of Cameroon 1991 are difficult to explain). Even in East and Southeast Africa, where Christian-Muslim differentials in contraceptive use proved less strong and consistent, Christians generally look more "anti-natalist" than Muslims. Interestingly, however, the religious gap tends to decline in most of West Africa (with a puzzling exception of Cameroon), but appears to increase in East African countries

with multiple DHS (even if it remains generally smaller than in West African countries).

Figure 15 about here

Discussion and conclusion

The Muslim-Christian divide in sub-Saharan Africa has different faces: from relatively innocuous cultural distinctions, to prejudice, segregation, and discrimination, to bloody confrontations between gangs of religious fanatics. Demographic profiles and trends in both religious groups are fundamental to the shape, content, and intensity of Muslim-Christian coexistence and interactions. Yet these demographic characteristics are in turn shaped by a number of factors are both internal and external to each group.

In an exploratory study that offers but a bird's view of Muslim-Christian fertility and contraceptive differentials it is impossible to address all the relevant country-specific demographic and cultural nuances. Thus to keep our presentation focused and concise, we did not address pre-marital childbearing. A cursory exploration of this matter on the side of this study points to a considerably higher pre-marital fertility among Christians. As both age at first marriage and premarital childbearing rises, the religious differentials in it may play and increasing role in overall Christian-Muslim fertility differentials.

Another challenge that this study did not address is disentangling the effects of religion from that of ethnicity and lineage systems. Historically, the spread of both Islam and various Christian denominations in Africa often followed ethnic boundaries, although in a more recent era religion has increasingly cut through ethnic lines. The study did not account for the diversity within the Christian population, which can be quite substantial and can influence the shape and strength of Muslim-Christian differentials.

The most important limitation of this study, however, is that it lacked appropriate data to examine different aspects of religious existence and coexistence, and especially to examine religious groups as *communities* (Agadjanian 2001; Goldscheider and Mosher 1988). Within such religious communities, adherence to certain practices that is initially influenced by the religious doctrine and the positions taken by religious leaders is further reinforced by social pressure and control.

Much of the effect of this milieu operates through the complex web of social norms, customs, and relationships that are often referred to as "women's status." DHS offers some crude proxies for women's status—such as women's education or age at first marriage—but the list of available measures is too short and their validity is questionable. More comprehensive and context-embedded measures of women's status are needed if we are to explore the effects of religion further.

Women's education, age at first marriage, and other predictors used in multivariate tests helped explain some of the religious differentials. The excess of Muslims TFRs observed in some countries disappeared and in some cases reversed itself: after adding controls, especially age at first marriage, Muslims had lower fertility than Christians in most countries. The presence of these differences remains puzzling, especially given Muslims' lower contraceptive use. While Muslim disadvantage in modern-method use were not as pronounced as in any-method use, it is in fertility preferences (the "stopping" intention) that the Muslim-Christian differences proved particularly stark. Finally, we also noted an association between religious differentials in fertility and contraception, on the one hand, and the two religious groups' relative size and spatial distribution, on the other.

A conventional conclusion from this study's findings would be to acknowledge that it has lent some support to the "characteristics" hypothesis, some support to the "minority-status" perspective, but has left much of the religious variation unexplained. Yet, as we proposed at the outset, this study's findings should not be seen narrowly as another test of the established hypotheses. Instead these findings call for a more contextualized view of reproductive choices and behavior.

Our regional focus—on West and (adjacent part of) Central Africa, on the one hand, and East and Southeast Africa, on the other—was one attempt in that direction. While neither region is homogeneous, meaningful regional-level differences in fertility and especially in contraceptive use, as well as some of their determinants could be clearly established.

The differences between West-Central Africa and East-Southeast Africa should be interpreted within the colonial and post-colonial politico-cultural context in which Christianity and Islam has coexisted for more than a century. In West-Central Africa, the Christian-Muslim divide has traditionally been more

strongly articulated. In Nigeria, for example, Islam was the mobilizing banner of the fierce resistance to the "Christian" British expansion. Ironically, during the colonial era the British "indirect" rule further strengthened the Muslim elites and fueled Muslim-Christian tensions. French colonies were characterized by strong (even if not always explicit) political and cultural domination of Christianity (especially Catholicism), which continuously marginalized Islam. This was also the case of Liberia, where the "internal colonialism" was particularly harsh on Muslims. The Muslim cultural and political disadvantage has endured into the independence period, although in most countries it has not resulted in communal confrontations until very recently.

Muslim-Christian relations in East and Southeast Africa have a very different history. Muslims there, especially in the core countries—Tanzania, Kenya, and Uganda—were never in the vanguard of the resistance to the colonial conquest and domination, as in Nigeria, or suffered excessive discrimination as in French Africa. Interestingly, when the Muslim elites rose up against the colonial rule, as it happened in Zanzibar, they chose Marxism-Leninism instead of Islam as the ideological tool of political mobilization.

The significance of religious differentials in fertility should goes beyond the narrow demographic confines. A curious yet inevitable reflection of global tendencies and events, the Muslim-Christian *political* tension in Africa is escalating where it was simmering for generations and is emerging even in places that are used to be thought of as religiously harmonious. The difference in growth rates between Muslims and Christians—due to fertility differentials, conversion, or proselytism—may upset the religious compositions of the population and consequently the precarious political balance in many a sub-Saharan society.

As globalization brings down informational barriers one may also expect a "virtualization" of religious communities, as different religious groups—Muslims, Catholics, Protestants, Pentecostals—connect with their brethren across the sub-continent and the world in a growing perception of common destiny. This may be particularly the case of Islam whose followers all around the globe—sub-Sahara not being an exception—increasingly perceive their religion and imagined de-territorialized community (a sort of virtual *umma*) as threatened by the Judeo-Christian political and cultural onslaught.

As numerous studies of western fertility have shown—and as this study also suggests—religious fertility differentials in Africa should eventually disappear. However, the cultural and political schism along the religious lines, and especially the continuing antagonization and marginalization of Islam may slow down the convergence by affecting both Muslims' acceptance of "western" contraception and perpetuating marital practices and gender norms that are conducive to higher fertility.

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Table 1. Basic demographic characteristics of Christians and Muslims

Country/DHS year	Population share (%)		Index of dissim.	Mean education (years)		Mean age at first marriage (years)		Total fertility rate		Contraceptive prevalence any method (%)		Contraceptive prevalence rate, modern method (%)	
	Mus.	Chris.		Mus.	Chris.	Mus.	Chris.	Mus.	Chris.	Mus.	Chris.	Mus.	Chris.
Togo 1988	11	38	0.48	0.9	3.8	17.8	18.5	7.41	5.00	31.8	32.8	2.3	6.4
Togo 1998	11	51	0.53	1.2	3.5	18.2	18.9	5.27	4.05	23.0	26.4	6.9	10.1
Cote d'Ivoire 1994	33	43	0.23	0.9	3.1	17.3	18.2	5.69	4.54	7.2	19.8	3.5	6.8
Cote d'Ivoire 1998	35	41	n/a	1.1	3.9	17.3	18.6	6.20	4.11	9.3	25.5	5.6	11.4
Burkina Faso 1994	55	33	0.29	0.6	1.8	16.7	17.6	6.75	6.11	22.5	30.7	3.6	8.0
Burkina Faso 1998	56	27	0.29	0.5	1.2	17.0	17.8	6.36	6.42	11.0	18.1	4.7	7.7
Ghana 1988	10	70	0.30	1.8	5.6	17.2	17.8	6.90	6.02	11.3	14.6	5.0	6.2
Ghana 1993	12	72	0.45	2.0	6.2	18.3	18.6	5.67	4.72	11.3	23.3	6.0	11.9
Ghana 1999	11	78	0.33	2.5	6.6	18.2	18.8	4.97	4.20	16.2	22.3	10.4	13.5
Nigeria 1990	48	48	0.75	0.9	3.9	15.3	18.0	6.25	5.83	2.4	10.7	1.6	6.1
Nigeria 1999	43	55	0.54	1.8	6.5	15.6	18.9	5.45	4.14	6.3	25.4	3.8	14.0
Benin 1996	21	46	0.62	1.0	1.9	17.7	18.9	6.44	5.34	10.1	22.6	3.2	4.4
Benin 2001	22	52	0.61	1.2	2.3	17.6	19.0	5.88	5.08	10.0	22.6	6.2	8.8
Liberia 1986	11	60	0.08	1.0	2.9	16.9	17.3	2.31	6.10	3.5	10.9	2.9	9.1
Cameroon 1991	21	67	0.71	0.8	4.8	14.4	17.3	6.03	5.76	5.5	23.1	1.3	6.6
Cameroon 1998	19	73	0.60	1.5	5.9	15.2	17.8	5.82	4.53	5.1	27.2	2.5	10.0
CAR 1995	9	90	0.23	1.1	2.1	15.8	16.9	5.27	5.07	9.9	15.0	4.0	3.4
Kenya 1989	4	92	0.72	3.3	4.6	16.6	17.6	5.25	6.76	16.6	27.5	14.3	18.4
Kenya 1993	5	91	0.68	4.1	5.5	17.4	18.3	4.27	5.41	27.2	33.0	25.2	27.6
Kenya 1998	5	92	0.64	5.4	6.5	17.8	18.5	4.60	4.70	32.0	37.8	24.8	31.0
Mozambique 1997	17	55	0.66	1.4	2.2	15.9	17.0	4.54	5.41	4.7	7.4	3.3	6.8
Tanzania 1992	31	55	0.52	18.0	4.1	17.1	3.7	5.70	6.44	11.4	12.7	8.0	8.4
Tanzania 1996	31	57	0.57	4.5	4.8	17.4	18.3	5.20	5.95	21.8	20.4	17.3	14.6
Tanzania 1999	33	54	0.55	4.7	5.0	17.5	18.1	4.64	5.75	27.4	27.3	22.6	17.8
Uganda 1988	10	90	0.29	2.9	2.8	16.0	16.9	7.22	7.47	5.9	5.5	3.7	2.7
Uganda 1995	12	85	0.21	3.4	3.4	16.8	17.0	7.15	6.83	17.6	13.8	10.1	7.4
Malawi 2000	13	85	0.30	2.2	4.2	17.4	17.5	7.26	6.24	22.5	29.0	17.9	25.2

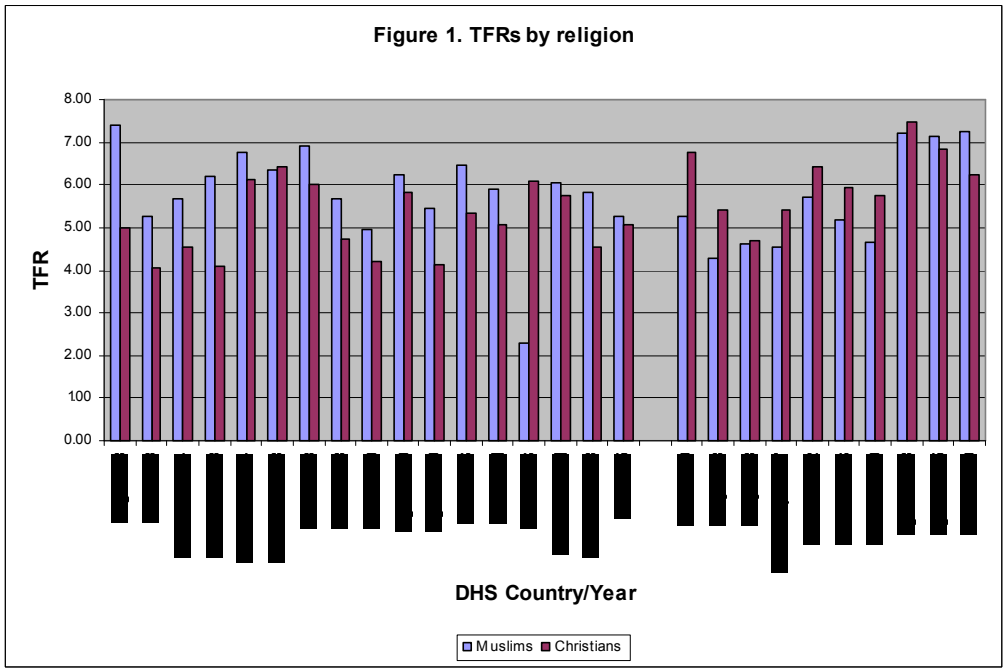


Figure 1. TFRs by religion
8.00
7.00
6.00
5.00
4.00
3.00
2.00
100
0.00
TFR
DHS Country/Year
Muslims
Christians

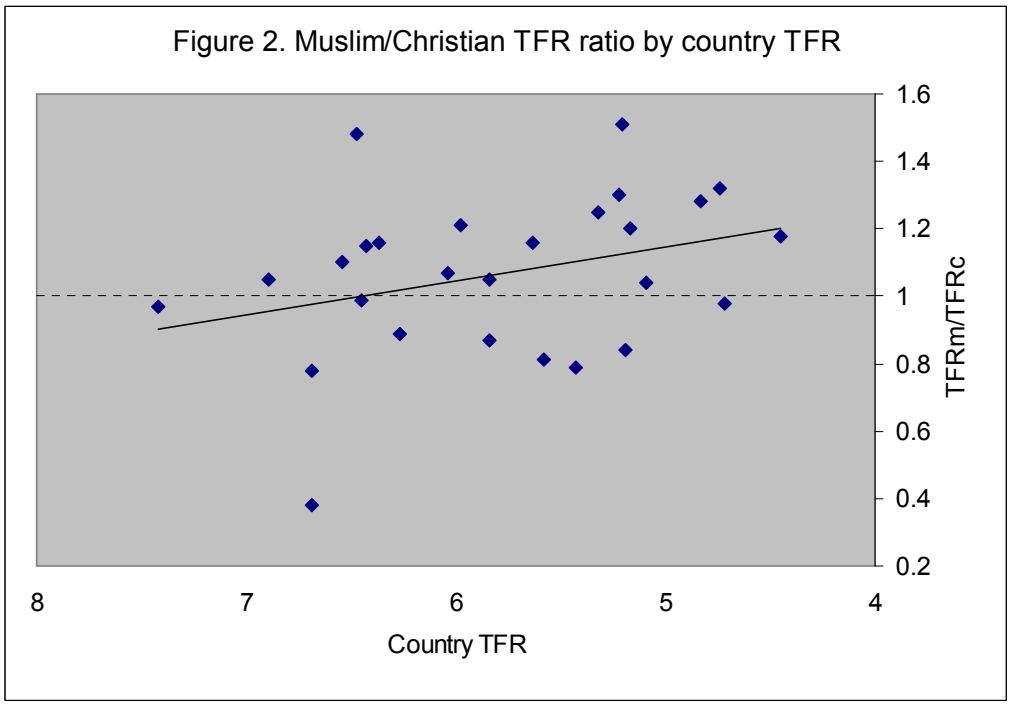


Figure 2. Muslim/Christian TFR ratio by country TFR
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
TFRm/TFRc
8
7
6
5
4
Country TFR

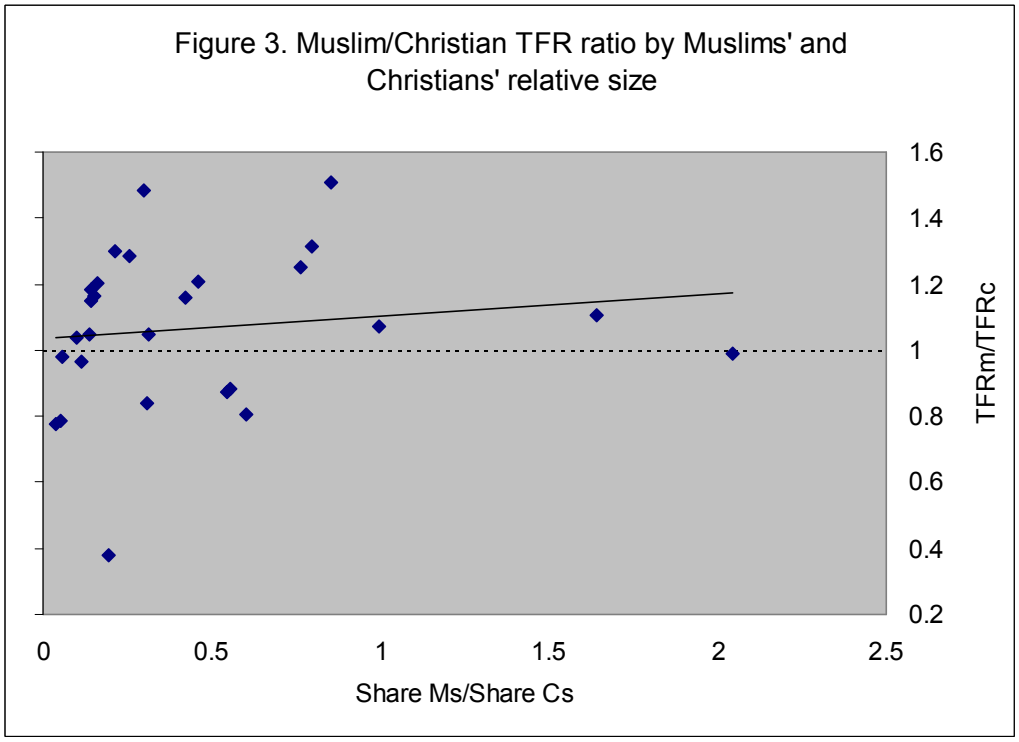


Figure 3. Muslim/Christian TFR ratio by Muslims' and Christians' relative size
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
TFRm/TFRc
0
0.5
1
1.5
2
2.5
Share Ms/Share Cs

Table 2. Muslim-Christian differences, multivariate results

Country/DHS year	Children ever born		Duration of last birth interval		Current use of any method		Current use of modern methods		Wants no more children	
	Poisson βs		OLS βs		Odds ratios		Odds ratios		Odds ratios	
Togo 1988	0.12	* * *	1.67		1.1 3 0.9		0.55		0.32	* * *
Togo 1998	0.05	*	-0.45		5		0.83		0.36	*
Cote d'Ivoire 94	0.00		-2.81	* *	0.5 3	**	2.31		0.55	* *
Cote d'Ivoire 98	0.03		-1.62		0.5 1	**	0.73		0.61	* *
Burkina Faso 1994	0.00		0.58		0.7 3	**	0.76	* *	0.80	*
Burkina Faso 1998	-0.04	* *	0.38		0.6 7	**	0.87		1.03	
Ghana 1988	0.03		0.81		0.9 6		1.08		0.51	* *
Ghana 1993	0.03		0.81		0.9 6		1.08		0.30	* *
Ghana 1999	0.03		0.81		0.9 6		1.08		0.39	* *
Nigeria 1990	-0.04	* * *	0.38		0.6 7	**	0.87		0.59	* *
Nigeria 1999	-0.06	*	1.43	+	0.4 5	**	0.33	*	0.55	* *
Benin 1996	0.03		0.57		0.4 3	**	0.90		0.32	* *
Benin 2001	0.08	*	0.46		0.4 0	**	0.69	* *	0.49	* *
Liberia 1986	-0.04	+ *	-1.81		0.6 2	**	0.60	*	0.62	*
Cameroon 1991	-0.15	*	0.67		0.5 2	**	0.50	+ *	1.49	+ *
Cameroon 1998	-0.04	* *			0.3 1	**	0.41	*	0.60	* *
CAR 1995	-0.07	*	2.07		0.6 5	**	1.70	+	0.59	*
Kenya 1989	-0.07	* * *	0.02		0.6 5	**	0.87		0.68	+
Kenya 1993	-0.07	*	0.38		0.8 6		1.01		0.90	
Kenya 1998	-0.04	*	3.70	* * *	0.9 0		0.81	*	0.60	* *
Mozambique 1997	-0.14	* *	1.76	* *	0.8 5		0.68	*	0.46	*
Tanzania 1992	-0.06	*	1.64	*	0.9 4		0.95		0.87	+
Tanzania 1996	-0.09	*	3.83	*	1.1		1.18	*	0.81	*

		*		*	0			*	*
		*		*	0.9				
Tanzania 1999	-0.10	*	5.62	*	2	**	1.16	0.78	+
					1.0				
Uganda 88	0.01		1.09		6		1.50	1.19	
		*		*	1.2				
Uganda 95	0.05	*	2.49	*	4	+	0.76	0.84	+
					0.5				*
Malawi 2000	0.03		-1.62		1	**	0.73	0.57	*

Note: significance level * p<.05, + p<.10

Figure 4. Current use, any contraceptive method, by religion

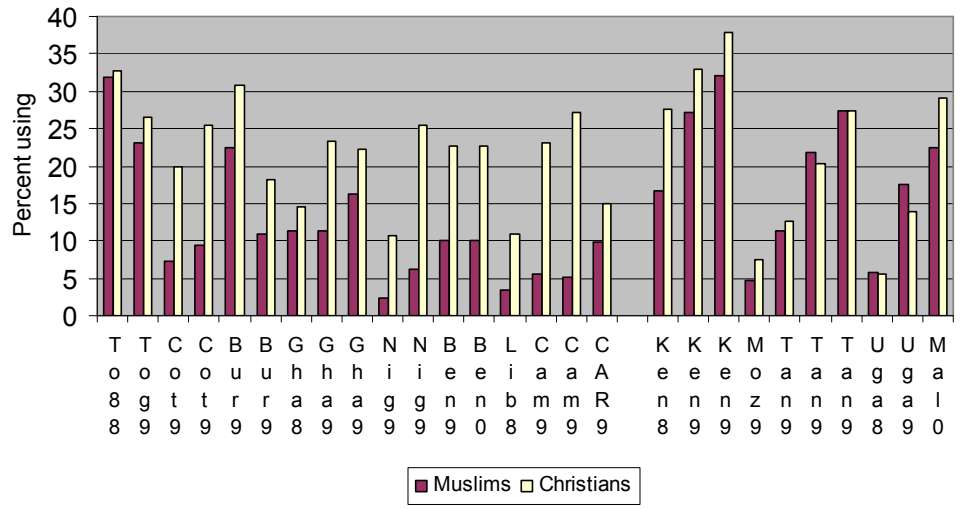


Figure 5. Current use, modern contraceptive method, by religion

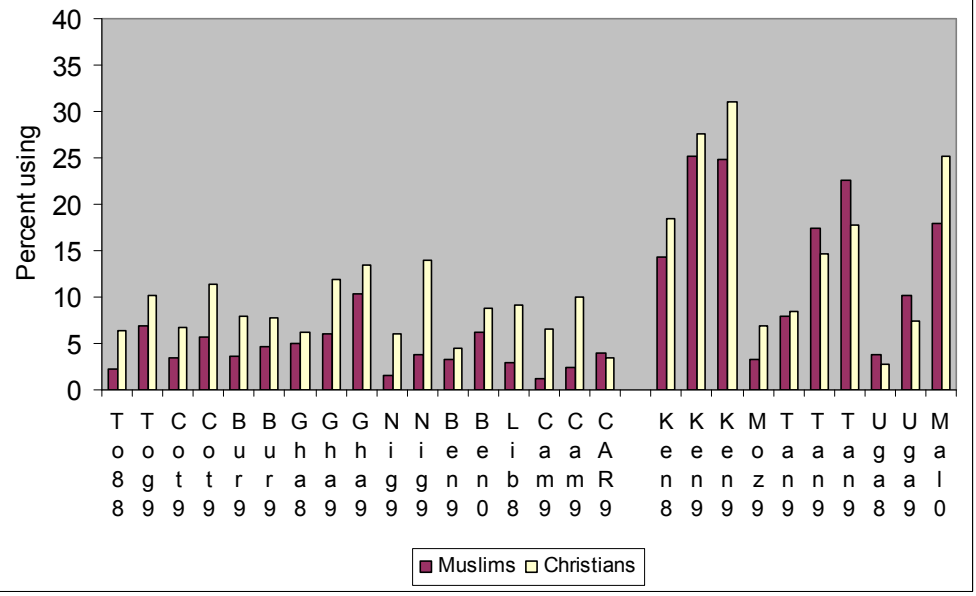


Figure 6. Muslim/Christian current contraception odds ratios (unadjusted), by total contraceptive prevalence, any method

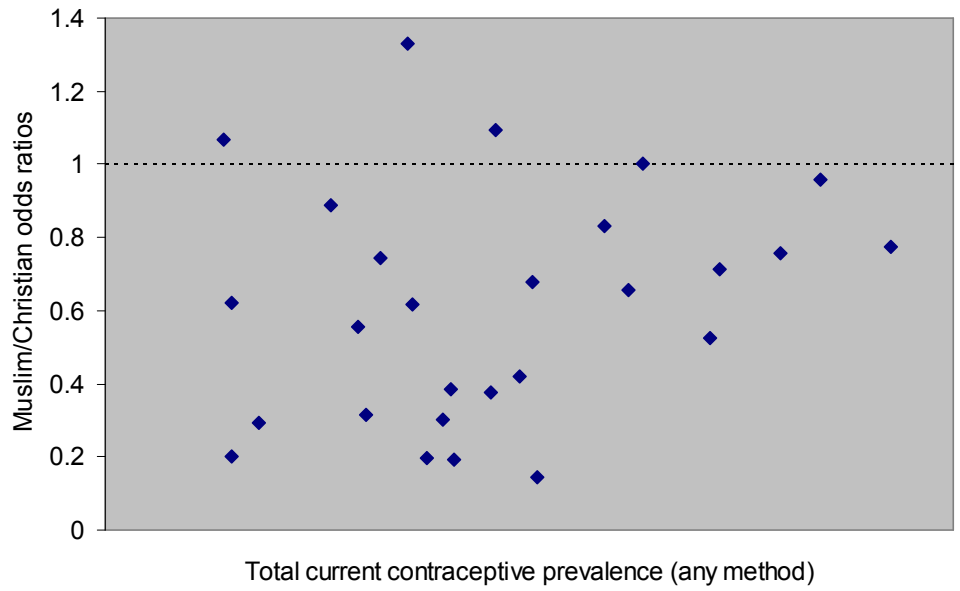


Figure 7. Muslim/Christian current contraception odds ratios (unadjusted), by total contraceptive prevalence, modern methods

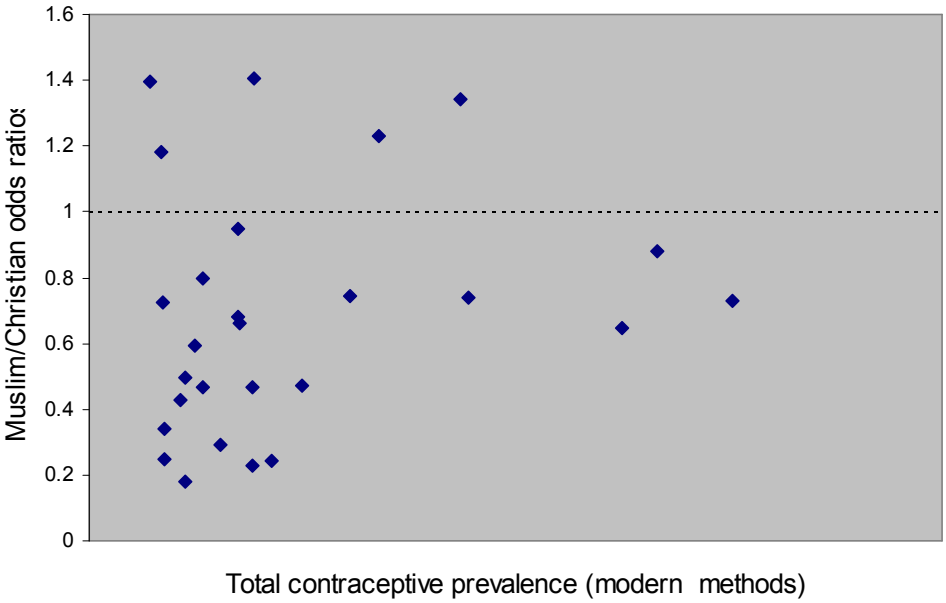


Figure 8. Muslim/Christian current contraception odds ratios (unadjusted), by percentage of Muslims in the population, any method

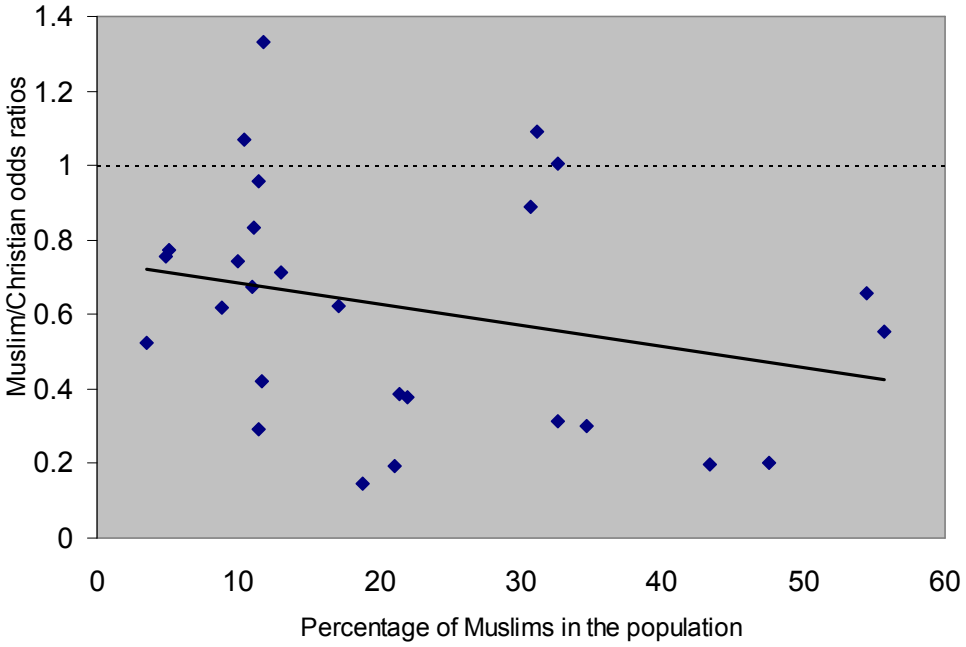


Figure 9. Muslim/Christian current contraception odds ratios (unadjusted), by percentage of Muslims in the population, modern method

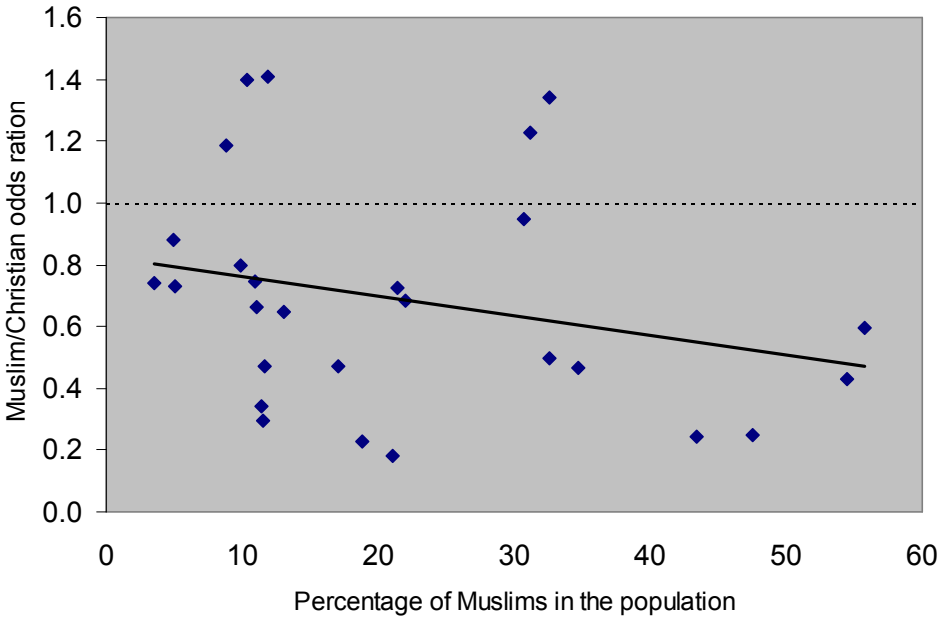


Figure 10a. Muslim/Christian current contraception odds ratios (unadjusted), by index of dissimilarity in the population, any method

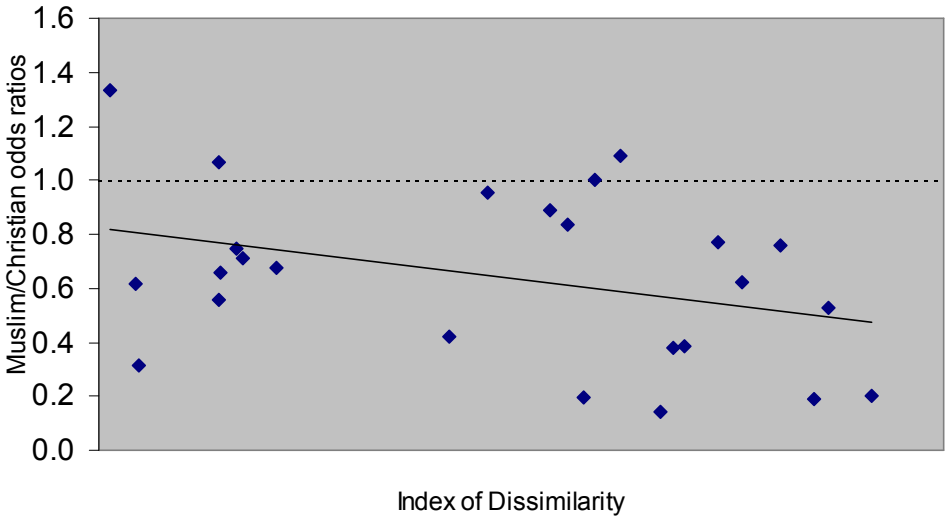


Figure 10b. Muslim/Christian current contraception odds ratios (unadjusted), by index of dissimilarity in the population,modern method

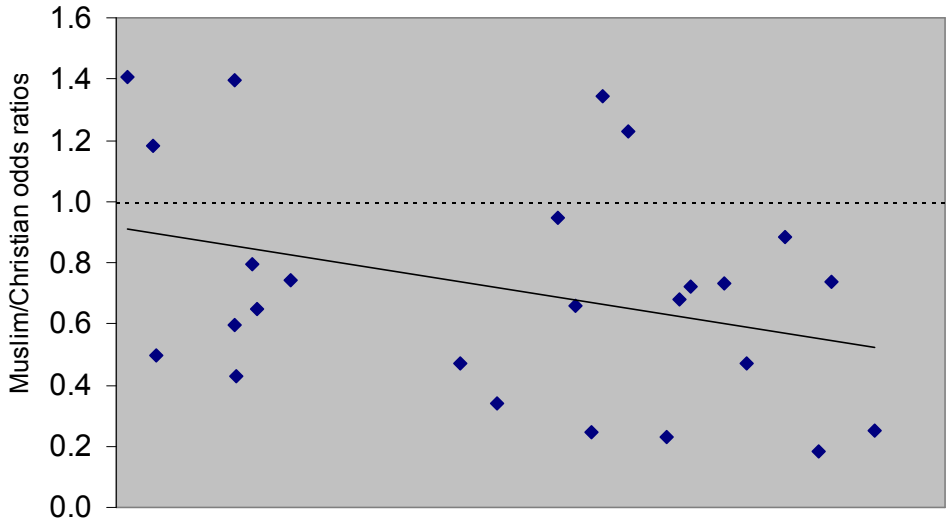


Figure 11. Muslim/Christian current contraception odds ratios (adjusted), any method

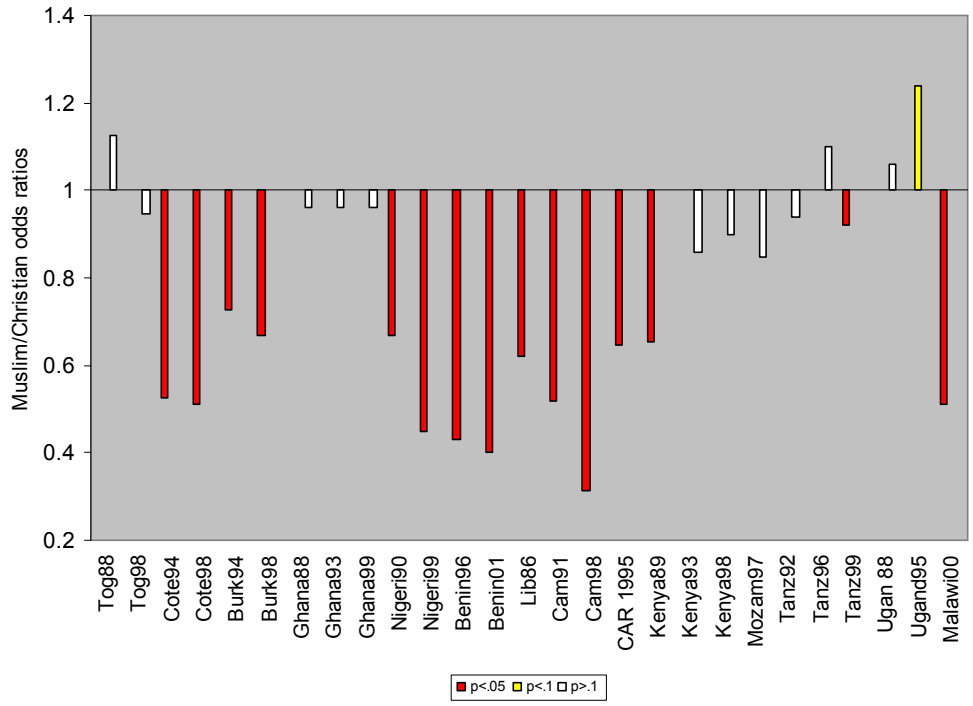
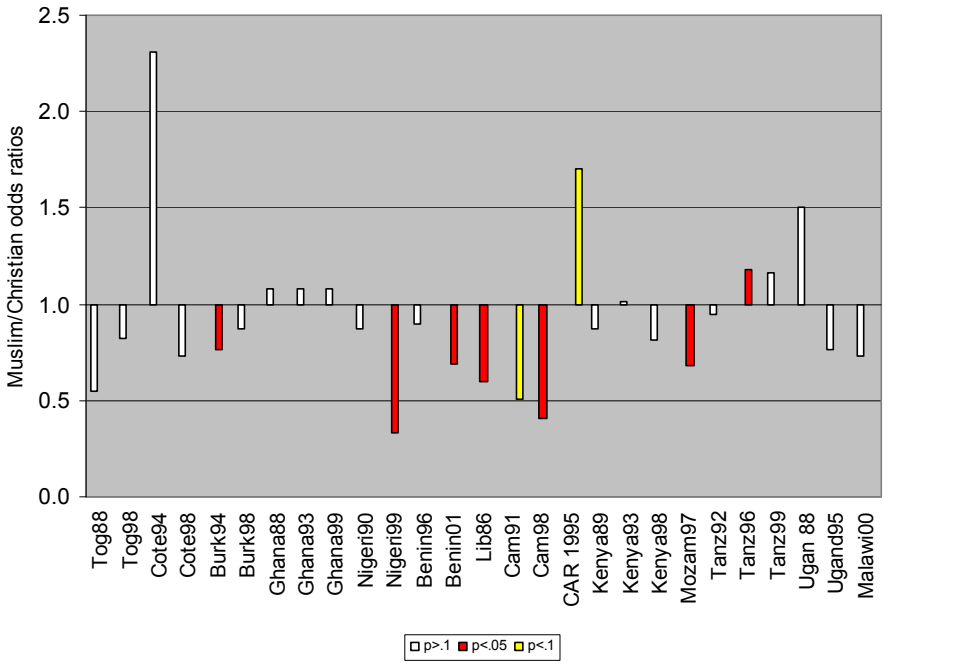


Figure 12. Muslim/Christian current contraception odds ratios (adjusted), modern method



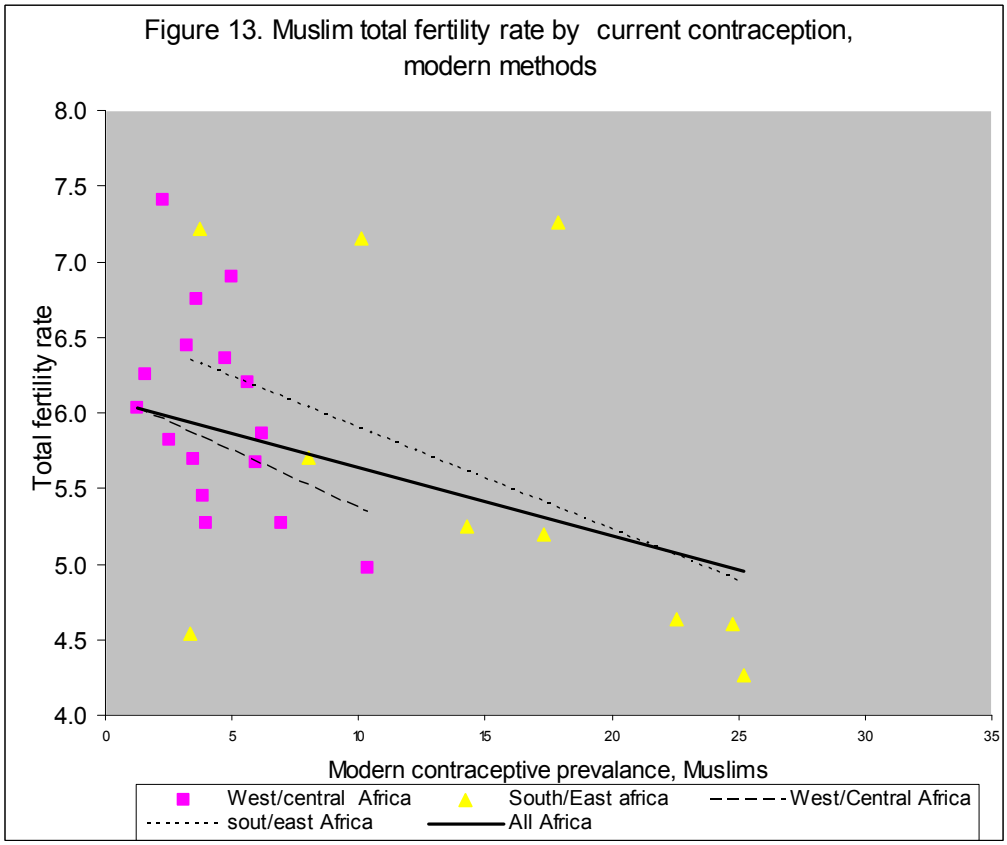


Figure 13. Muslim total fertility rate by current contraception, modern methods
Total fertility rate
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
0
5
10
15
20
25
30
35
Modern contraceptive prevalance, Muslims
West/central Africa
South/East africa
West/Central Africa
sout/east Africa
All Africa

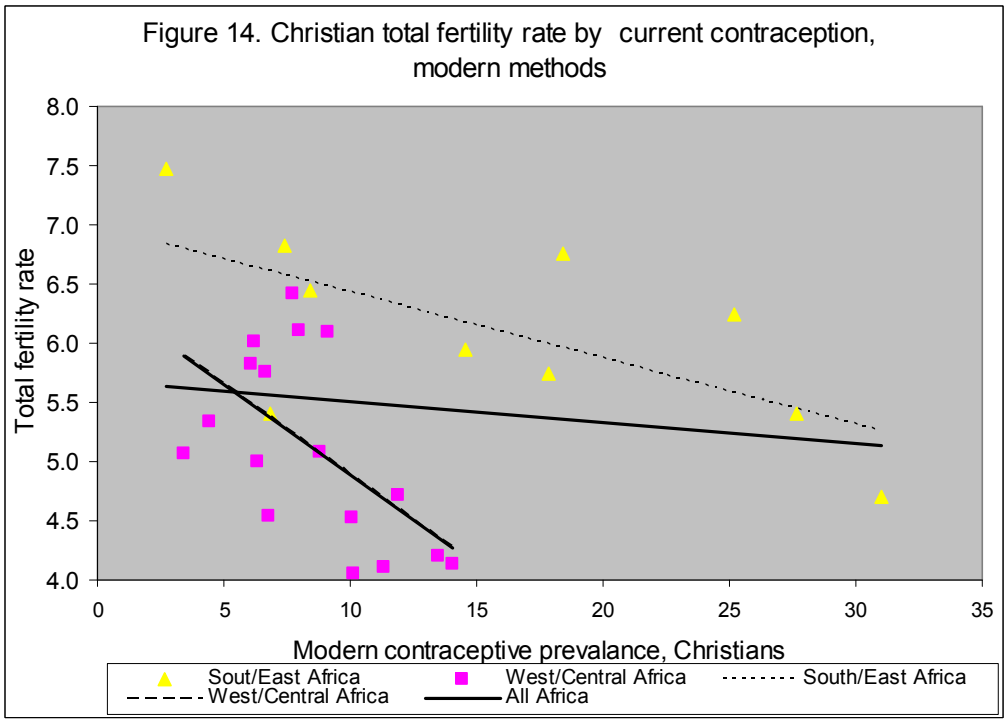


Figure 14. Christian total fertility rate by current contraception, modern methods
Total fertility rate
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
0
5
10
15
20
25
30
35
Modern contraceptive prevalance, Christians
Sout/East Africa
West/Central Africa
South/East Africa
West/Central Africa
All Africa

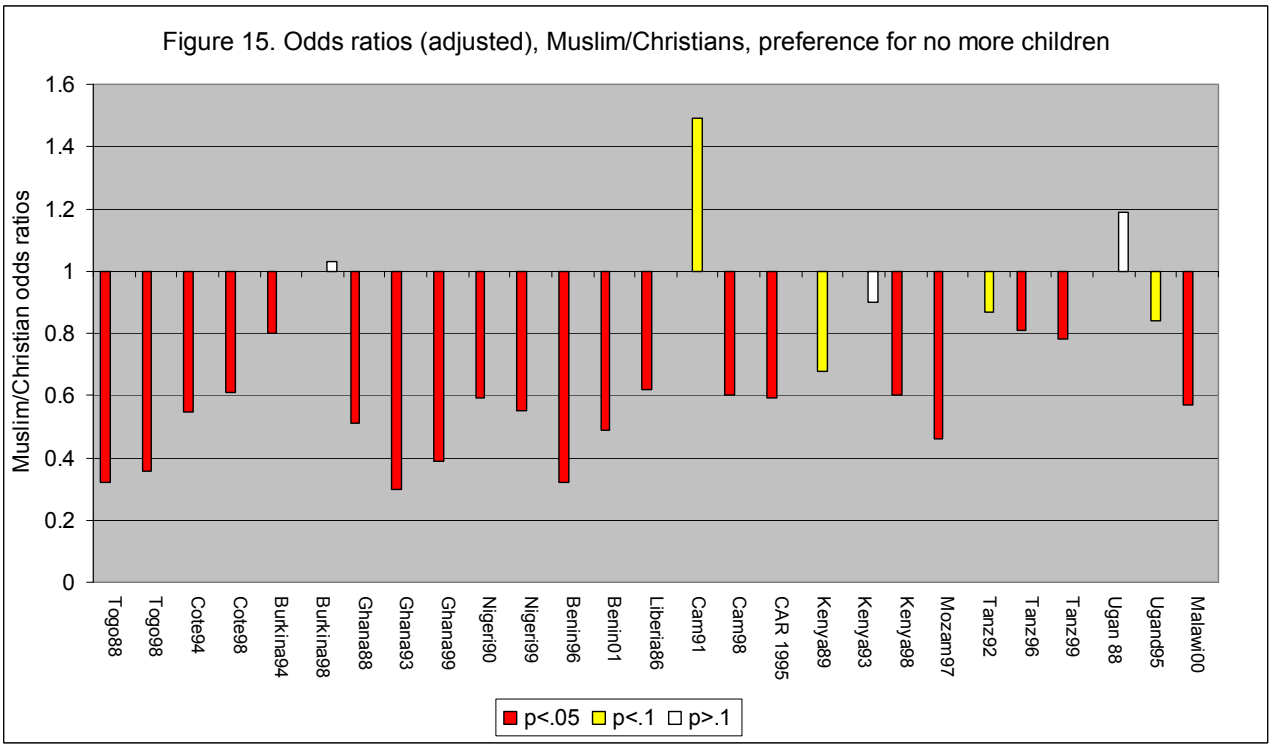


Figure 15. Odds ratios (adjusted), Muslim/Christians, preference for no more children
Muslim/Christian odds ratios
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Togo88
Togo98
Cote94
Cote98
Burkina94
Burkina98
Ghana88
Ghana93
Ghana99
Nigeri90
Nigeri99
Benin96
Benin01
Liberia86
Cam91
Cam98
CAR 1995
Kenya89
Kenya93
Kenya98
Mozam97
Tanz92
Tanz96
Tanz99
Ugan 88
Ugand95
Malawi00
p<.05
p<.1
p>.1