Religious and Fertility Preferences of the Kassena-Nankana of Northern Ghana

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Abstract

Religious preference is undergoing major changes in rural Sahelian Africa, with profound consequences for customs that are grounded in traditional belief systems. This study examines the influence of changes in religious affiliation on the fertility preferences (measured by the desire to limit fertility) among the Kassena-Nankana of Northern Ghana. Longitudinal data (for women in 1995 and 2003) come from the Community Health and Family Planning Project of the Navrongo Health Research Centre and analysis shows that 61 percent of women switched their religion with shifts from traditional religion to Christianity being dominant. Further, more women switched their religion than men. Regression results show that compared to traditional non-switchers, switching from traditional religion to Christianity or Islam is associated with increased desire to limit fertility. Switching from Christianity to Islam and viceversa is also associated with increased desire to limit fertility. Women who switched from Islam to traditional religion were associated with a reduction in their desire to limit fertility. The fact that religious preferences are changing more rapidly among women than men may have social consequences for the status of women, signalling a trend toward greater autonomy in the family and new aspirations, values, and behaviour as evidenced by the proportion of women desiring small families.

Introduction

Ghana is one of the few countries in sub Saharan Africa which has experienced a substantial decline in total fertility rate (TFR) during the last decade. For example, results from the 2003 Ghana Demographic and Health Survey (GDHS) show that Ghana experienced a drop in fertility from 6.4 births per woman in 1988 to 4.4 births per woman during the last five years. This represents a 2-child drop in fertility over the last 15 years. This decline has been observed recently in every age group with fertility levels among women under age 35 declining by about 25 percent between 1988 and 1998 surveys (GSS, NMIMR and ORC Macro 2004; GSS and MI 1999). However, fertility rates by place of residence are pronounced: rural women have 2.5 more children than their urban counterparts with the Northern Region registering as high as 7 births per woman whereas the Greater Accra Region recording a low of 2.9 births per woman.

A number of factors have been identified as responsible for the observed fertility decline. The 2003 GDHS reports a 5 percent decrease in the percent of women currently in union over the last five years from the survey—from 65 percent in 1998 to 62 percent in 2003. This decline has been most prevalent among the youngest (15–29) and oldest (44–49) age groups. There is also a trend towards late entry into marriage and a decline in the proportion of women getting married by age 15, from 11 percent among women aged 40–44 to 3 percent among those currently aged 15–19 at the time of the survey. Decline in sexual activity is one of the factors that have been observed in Ghana as responsible for the decline in fertility. For example, findings from the 1998 GDHS show that nearly 40 percent of women were sexually active in the four weeks prior to the survey compared with, for example, 57 percent of women in Niger, 58 percent in Cameroon, and 63 percent in Senegal. Other factors include an increase in age at first birth, longer birth intervals—with half of all births occurring more than three years after a previous birth, and a narrowing of the gap between desired and achieved family size as evidenced by the mean ideal number of children which declined

from 5.5 in 1988 to 4.8 in 2003 (GSS, NMIMR and ORC Macro, 2004). TFR declined from 6.4 in 1988, to 5.2 in 1993, and stabilized at 4.4 in 1998 and 2003.

Virtually all women in Ghana are aware of family planning, with 98 percent of currently married women having heard of at least one modern method of contraception. Contraceptive prevalence rate was estimated at 25 percent in 2003. However, a number of proximate determinants of fertility are operating in Ghana and are beyond the scope of this paper.

The government and family planning officials in Ghana are committed to ensure that fertility levels remain at reasonable levels countrywide. Despite the substantial decline of fertility in Ghana, particularly in the urban areas, fertility levels in rural Ghana are still high. Current efforts to reduce fertility in rural Ghana focus on making contraception available to individual women in their communities. This strategy is based on findings from survey data that have indicated that many women have more children than they desire and that contraception would be used if methods were readily available in their rural and impoverished communities (Adongo et al, 1997). Thus, it is assumed that inaccessibility of modern contraception to women is one of the barriers to use and subsequent high levels of fertility.

Among the Kassena-Nankana, ancestral spirits are believed to be an extension of the extended lineage into the afterworld. Rites and beliefs emphasize the importance of the corporate family and the collective value of the lineage. A change in religious affiliation from these traditions to relatively individualistic belief systems is expected to be associated with behavioral consequences. We expand this argument by employing Goldscheider (1971) "particularized theology" (PT) perspective. According to this perspective, issues reflecting individual agency, such as personal reproductive choice could be affected by the individual ideals of religious tradition. Goldscheider's PT perspective states that the effect of religion on fertility behavior and attitudes of different religious groups is influenced by the particular religious doctrines of religious groups about birth

controls (e.g., bans on contraception) and ideal family sizes (p. 272). In further synthesis of his work, Goldscheider (1971) largely dismissed the PT approach as important for understanding religious differentials (refer to his work for a thorough discussion of the higher fertility of Catholics compared to non-Catholics in America). A plausible explanation of fertility differentials of fertility groups may be explained by the social behavior exhibited by religious members. Individuals may join religious groups and weigh their options in following particular doctrines or set of behaviour. This may partly explain the observed low fertility among Catholics in Italy where the church bans use of modern contraceptives yet their fertility is very low. Recognizing the weakness of the PT approach, Goldscheider further attempted to explain religious subgroup differentiation of fertility patterns by invoking the "characteristics" proposition which states that the distinct fertility of religious subgroups is a manifestation of numerous social, demographic, and economic attributes that characterizes the religious subgroup. Religious group membership alone is viewed as insignificant in explaining fertility differentials but the social, demographic, and economic characteristics that religious group membership connotes.

The "PT" and characteristics approaches to fertility, despite their limitations in explaining fertility in unison, are part of a general approach to interpreting the relationship between religion and fertility. According to Goldscheider, these approaches should not be viewed as mutually exclusive, independent or contradictory (p. 273). As Lehrer (2004) has posited, some religions provide an element of psychosocial reward for large families in terms of approval, social status, and blessings. In particular, switching from traditional to non-traditional religion (encompassing Catholicism, Islam, and the various strands of evangelical Protestantism) in societies which rely heavily on large kinship networks may reflect social changes that are nucleating family values more generally (Sander 1995). The combined effects of these changes may underlie changes in contraceptive use and family size preferences (McQuilan 2004). Goldscheider and Mosher (1991)

acknowledge that shifts in religion may reflect other changes that alter gender relationships and social organization and that religion may serve as a marker for these particularized theological transitions. The influence of religion on demographic behavior is both the consequence of social systemic changes that contribute to religious changes and also a reflection of the direct influence of religious tenets on reproductive behavior. Taken together, the shifts to non-traditional religion represent a shift to social particularization.

In this paper, we draw on Goldscheider framework, by focusing on religious affiliation as its measurable manifestation to assess the effect of social particularization on fertility preferences. We argue that the environment in which people live and in which people shift their religion plays an important role in influencing fertility preferences. This environment is often dictated to a reasonable extent by the teachings of the religious groups. We believe that a shift to a perspective (e.g., from traditional to Christianity) that allows individuals to weigh the consequences of their beliefs for their situation is an important aspect of the religion-fertility relationship. This would entail perception of fertility by those who switch their religion as a social behaviour, that is, the behavior demonstrated by those who belong to those religious groups and which acts as a reference for the 'new converts.' The influence of these shifts in religion may also be a reflection of a more general change in worldview that accompanies the movement from traditional religion.

Religious Affiliation among the Kassena-Nankana

Among the Kassena-Nankana of northern Ghana, every village has soothsayers who guide ancestral worship and every compound has a shrine for making sacrifices to ancestral spirits (Adongo et al. 1998). Critical events among the individuals are accompanied by rites involving soothsayer ancestral consultation. Nonetheless, survey research shows that the number of people professing Christianity

among the Kassena-Nankana is increasing with Islam also making strides in the society (De Witte 2003; Doctor et al, 2004; 2005).

The introduction of Christianity in Ghana was in two broad phases: The first phase was the arrival of the Portuguese missionaries in 1471 near Sekondi (now Sekondi-Takoradi) in the coastal part of Ghana. Before the Portuguese explorers and traders left, they put up a large wooden cross on the beach, the first cross ever to stand on the West African soil. In 1482, the Portuguese returned to establish fortifications at the southern coastal village of Elmina where they established the first permanent parish in Ghana (Kazaresam 1975). There was no serious evangelization between the 15th and 19th centuries, constraining the spread of Christian influence owing to the preoccupation of colonialists with the gold and slave trades. Until 1874 when the British took control of Ghana (then Gold Coast), continuous clashes among the British, Portuguese, Dutch, and the Danish colonialists had a negative impact on evangelization. Nevertheless, when the British claimed full responsibility for unifying the various ethnic groups within Ghana and consolidating their control of the country, it was possible for missionaries to engage in proselytization (Kazaresam 1975).

The second phase involved missionary evangelization at the end of the 19th century which was fostered by the arrival of both Catholic and Protestant missionaries who developed parishes and religious affiliated educational institutions. Based initially in coastal Elmina in 1880, Catholic parishes engaged in steady and uninterrupted growth—in particular, the Catholic missionaries who first arrived on 23 April 1906 in Navrongo, the capital of Kassena-Nankana District (KND). While further expansion of Catholicism was slowed by a strong wave of anti-clericalism that hit France and spread out of the then French Empire by the turn of the 20th century, the cultural conditions of the locality also affected missionary work owing to engrained traditional belief systems and conservatism about exchanges with 'strangers.' Christianity challenged polygynous marital customs and other beliefs that organized family life. Nonetheless, missionary presence was sustained and the church

that was established in 1906 continued to operate (Kazaresam 1975). But, missionaries were more than priests, as they functioned as agents of social change developing schools where youth learned the Christian religion in the context of learning about science, European history, politics, and technology. This approach to education detached the transition to adulthood from traditional institutions, socialize youth for marriage, family building, and economic pursuits. Also, missionaries introduced Western medical centres which contributed to the credibility of Western religion, social institutions, and colonial governance (Kazaresam 1975).

In recent decades, the spread of Christianity has been accelerated by the emergence of Pentecostal and charismatic churches. In particular, membership in charismatic churches is increasingly common among young, educated, and upwardly mobile people in the urban areas (De Witte 2003). Even in rural areas, however, women and youth are particularly inspired by the themes of Pentecostal and charismatic churches (Gifford 1994). African Pentecostal and charismatic churches offer a breakthrough for salvation, divine healing, deliverance, and prosperity. For example, membership in Pentecostal churches is believed by many to yield a personal experience of the acts of the Holy Spirit of which speaking in tongues is the first outward manifestation with the Bible viewed as the foundation of the Christian faith, justifying the ultimate elimination of traditional beliefs.

From the foregoing discussion, we find that to a large extent people are switching religions in order to seek ways of addressing their problems. Thus, religious groups that are perceived or believed to address these problems are a dominant stream. Some church-based organizations in the KND area (e.g., Catholic Relief Services, Adventist Development and Relief Agency, High Powered Ministry) provide micro loans for businesses to women members. People may change their religion because of marriage. When partners belong to the same religion, they may have reason to believe that their union is stable since they have a common ground for their beliefs. The stability established

by belonging to the same religion may have an effect on fertility preferences and other socioeconomic behavior since the couples may believe that they have a common ground for their beliefs. For example, if a couple's religion forbids use of contraceptives, it is reasonable to expect that the couple would adhere to such doctrine whereas if the couple belongs to different religions, they may exercise different behavior related to childbearing (Lehrer 2004).[1]

Other people may change their religion due to feelings of neglect or isolation in their churches. Members who may have violated some of the religious doctrines such as divorcing or committed adultery may have reason to attend churches that have less strict doctrines and that offer hope for reconciliation with God without being discriminated against. While the data that we use do not have any information on reasons for switching—since our measure is based on religious affiliation at baseline and follow-up survey—it is important to acknowledge that there may be a number of reasons associated with the switching which our study does not capture.

Recent literature (e.g., Yirenkyi 2000) documents that not only are Ghanaians becoming more religious but the more faith healing organizations, charismatic, evangelical, as well as Pentecostal churches have emerged. These novel churches are popular because of their "healing," "salvation," and "prosperity" approach—something which seems to fit the needs of many impoverished populations dissatisfied with their current living standards. During the colonial period, traditionalists in Ghana were very accommodating since it was not strange for an African to accept baptism into a Christian church and still hold on to traditional religious practices (Quashigah 1999). Although we cannot establish from our data the prevalence of dual religious identity, it is reasonable to expect that people who, for example, switch from traditional to Christianity may bring elements of traditional religion into their newly adopted religious group.

De Witte (2003) has pointed out that the upsurge of these charismatic churches may be associated with the fact that religion has emerged as a potent social force in private and public life. It

is reasonable to think that such an increase in the proportion of people professing religious affiliation should be associated with their knowledge of issues that have a direct impact on their life such as AIDS, infectious diseases, and also knowledge of their reproductive behavior. This is related to the fact that a number of religious groups have a number of information, education and communication messages targeted at their members on issues affecting their health. This usually takes the form of workshops involving prominent guest lecturers and presenters from other religious or civil society groups.

The substantial proportion of people professing religious affiliation is evidenced by Ghana's population of 2000 which was estimated at 20 million of which 69 percent were Christians, 16 percent Muslim, and 9 percent adhering to traditional or indigenous and other religions (United States State Department 2002). Since the 1980s, an increasing number of Ghanaians view themselves as Christians. La Verle (1995) reported that the percentage of Ghanaians claiming to be Christians rose sharply from 42 percent prior to the 1980s to 62 percent in the mid-1980s. Gallup International (2000) reported that out of 50,000 people interviewed in 60 countries, the majority (98 percent) of Ghanaians interviewed (sample size not specified) professed belonging to a religious denomination with 82 percent reporting regular church attendance. The results by Gallup suggest very few Muslims. Nevertheless, it is worth noting that Muslims are present in significant numbers in northern Ghana, a historical artifact, as Islam entered present-day Ghana in the 14th century, mainly from the north (Azumah 2008).

What is the effect of religious switching on fertility preferences? Are women who switch from traditional religion to Christianity or Islam more likely to desire to limit fertility? Employing longitudinal data permits description, not only of the rate of religion switching, but also estimating the impact of this phenomenon on fertility preferences. We use unique data sets, collected by the Navrongo Health Research Centre (NHRC), containing linked records across two surveys

conducted in KND in 1995 and 2003 by comparing religious affiliation in 2003 against prior religious affiliation and show whether this has got an influence on the desire to limit fertility.

The present study is a component of a more general investigation of social and demographic change in KND. The major limitation of this study is that individuals may switch religions several times between interviews. However, we assume that such rates of multiple switching are negligible limiting bias that could arise mindful of the fact that religious changes are not a here-and-now matter, but take time to unfold. In addition, our data have neither information on the different Christian denominations (e.g., Catholic, Protestant, Pentecostal or charismatic) nor information on religiosity (e.g., how much they go to the church or how often they read the Bible or the Koran. However, we know from the literature reviewed earlier on Catholic missionaries that majority of Christians in the district are Catholics and a sizeable proportion are Protestants. Thus, we only examine three religious categories: Christians, Traditionalists, and Islam and exclude rare cases in which individuals professed 'other' religions in the course of panel survey interviews. Previous research has demonstrated that fertility preferences may be under-reported in Navrongo owing to prevalent of 'denial' (Debpuur, et al. 2002). Fertility preferences that are cited in panel survey results almost certainly under-report the actual preferences. Religious beliefs may therefore explain transitions in reporting rather than changes in actual preferences.[2] The lack of information on husband religion in the data is also another limitation in understanding the role of religion on contraceptive use and parity.

Research Setting

The NHRC is an institution of the Ghana Ministry of Health (MOH) that has been mandated to research preventable causes of morbidity and mortality and related problems of high fertility in northern Ghana. The NHRC is located in the KND on the border with Burkina Faso. The social,

ecological, and economic attributes of the study area are more representative of the Sahel population to the north of Ghana than of cultures and attributes of the coastal West African cultures in the south of Ghana (Adongo et al, 1997). Navrongo is one of the towns in the district with access to communication facilities, tarmac roads, and electricity. Other towns include Paga and Chiana. Briefly, the KND is largely inhabited by rural, agrarian, and poor people. Poverty is widespread in northern Ghana (and particularly in KND) compared to other parts of Ghana and stimulates out-migration. The largely wobbly agricultural production and increase in the population have compelled young adults to migrate to cities for temporary employment.

To address the need for practical field trials of community health services, the Government of Ghana launched the Navrongo Community Health and Family Planning Project (CHFP) in 1993 in order to test the demographic impact of different schemes for services being offered (Bawah 2002). Details of the CHFP have been extensively published elsewhere (see for example, Binka et al, 1995; Adongo et al, 1997; Pence et al, 2001; Bawah 2002; Feyisetan et al, 2003; Nyonator et al, 2003). In brief, the CHFP serves a broader, and international, need for a rigorous, controlled evaluation of organizational strategies for primary health service delivery in rural Ghana. The CHFP is a two armed community-randomized quasi-experiment that combines a program of community health and family planning services with an arm for mobilizing traditional leadership, communication and volunteerism. Four cells are implied because the arms are implemented independently, jointly, or not at all in four sub-district health centres (catchment areas) in three of the cells, with the fourth cell serving as a control and offers the usual government services at MOH service points. The three interventions were designed through consultations with MOH officials and village elders and groups. The *zurugelu*[3] cell seeks to increase community involvement in health decisions by involving local people and volunteers in health planning and delivery of health activities and services. The MOH mobilization cell tests the effectiveness of improving access to health

services by relocating community health officers (CHO) from fixed clinics to village residences and assigning them doorstep service delivery responsibilities. The combined cell uses both approaches and establishes close collaboration between the CHOs and the community leaders and volunteers. A comparison cell receives services according to standard MOH guidelines (Pence et al, 2001).

The CHFP has been longitudinally monitoring demographic dynamics in a population of about 143,000 since July 1993, with interventions beginning in 1995. The Navrongo panel surveys consist of a longitudinal follow-up of a random sample of women of reproductive age and their husbands. The initial sample for the panel survey was drawn from the Navrongo Demographic Surveillance System in 1993. Prior to 1993, a census of KND was conducted and each resident was assigned a unique identification number (ID). A re-canvass of the population was done in July 1993 and since then the population has been monitored every 90 days in order to record demographic events taking place such as in- and out-migration, births, deaths, marriages, and other events (Binka et al, 1995). The 1993 survey instrument was modeled after the 1993 GDHS. The core questionnaire gathered information on respondent's background, contraceptive use, reproductive histories, pregnancy, breastfeeding, and fertility preferences. The survey targets women and their coresident husbands. Subsequently, the 1995 and 2003 files are linked based on the unique ID, and women who were interviewed in both surveys are retained.

Because some of the questions in the 1995 panel survey[4] are repeated annually, the impact of shifts in religious preference between the surveys on fertility preferences can be assessed. Although the panel surveys are conducted annually, we examine the 1995 and 2003 panels in order to assess the impact of religious switching on fertility preferences for a cohort of women over a reasonable long period of time. This is important because we observe the religious affiliation of a cohort of women in 1995 and follow them in 2003. The sample is restricted to women aged 15–41 in 1995 who move into the age group 23–49 in 2003.[5] Observing women in annual surveys, for the purposes

of this study, has got the disadvantage of censoring. We want to follow women for a period we think religious switching is substantial to influence the reproductive behavior of women.[6] Panel data for interim years were also not available and this prevented the application of hazard modeling for the present investigation. Yet, observation of substantial periods of time is associated with concomitant migration. For example, Bawah (2002) found that about 25 percent of women who were interviewed in 1995 could not be linked in 1997 due to migration. Most women move out to stay in other places and when divorce occurs, they often go to stay at their homes. Migrants may differ from non-migrants in their religious practices and fertility preferences over time. Despite the absence of repeat panel, the existence of detailed demographic surveillance data in study areas permits use of identification methods, reducing sample loss (when new respondents are added to the panel) and greatly facilitating survey data linkage.

For women in 1995–2003 group, the baseline survey yielded a sample of 5,288 women aged 15–49 years and 5,842 women were interviewed in 2003. The 2003 sample is greater than the 1995 sample because urban Navrongo which was not part of the 1995 sample was included beginning from the 1996 round. However, our sample for the present study is restricted to 3,911 currently married and ever-married women of reproductive age (i.e., 15–41 years) from the 1995 survey of whom we are most confident that linkages for only 2,033 women in 2003 have been done correctly—about 52 percent of the target sample (n=3,911).

Measurement of Fertility Preferences

Both the baseline survey and the follow-up survey included the question: "Now I have some questions about the future. Would you like to have (a/another) child or would you prefer not to have (any/more) children?" This question was asked to non-pregnant women at the time of the survey. Possible answers were "have a/another child", "no more/none", and "infecund", and

"undecided/don't know". Analysis focuses on the first two categories which are denoted as "yes" and "no".

Results

Demographic Characteristics

Table 1 presents a comparison of basic characteristics of women interviewed in 1995 and 2003 (aged 15–49 years in each year) with those interviewed both in 1995 and 2003 (aged 23–49 years). Among all women aged 15–49 years in 1995, 77 percent had no desire to limit fertility whereas this percentage declined by about 11 points in 2003. However, more women who were interviewed only in 1995 did not want to limit fertility (77 percent) than those aged 23–49 years who were interviewed in 2003 only (52 percent). For women interviewed in both surveys, 34 percent of them had the desire to limit fertility compared with 53 percent who wanted more children. Across all the different sample groups, the percentage of infecund women ranged from about 1 percent to 3 percent whereas the percentage of women who were undecided ranged from about 4% to 6%. In general, the results show that between 1995 and 2003, the percentage of women indicating desire to limit fertility increased by almost three-fold.

About nine percent of women were using contraceptives in 1995 whereas in 2003 this percentage increased to 12. For the target sample of women interviewed between 1995 and 2003, we find that contraceptive use increased from nine percent among women interviewed in 1995 only to 17 percent among those interviewed in 2003 only. Among those who were interviewed in both surveys, this percentage slightly decreases to 16 percent compared to the women who were interviewed only in 2003 but also interviewed in both surveys. Results further show a dramatic and rapid shift in stated religious preference: Whereas 61 percent practiced traditional religion in 1995, only 29 percent did so in 2003. And for women interviewed in both surveys, 36 percent of them

were practicing traditional religion. Other characteristics of the study population are also changing. About 74 percent were married/living together in 1995 and this percentage declined to 59 percent in 2003. About three out of every four women interviewed in both surveys were married/living together. The percentage of the never married women doubled from 14 percent in 1995 to 28 percent in 2003 and to a low of six percent among those who were interviewed in both surveys. These trends may be related to the aging of the cohort.

Table 1 about here

With respect to education, the results show that 69 percent of women were uneducated in 1995 whereas this declined to 50 percent in 2003. For women interviewed in both surveys, 61 percent were illiterate. Comparing 1995 and 2003, we observe an increase in the percentage of women with at least a primary education: From about 31 percent in 1995 to about 50 percent in 2003. This suggests that women were younger in 2003 than in 1995 due to the fact that young women were added to the panel each year. For women interviewed in both surveys, about 32 percent had at least primary education. Kassena and Nankana are dominant ethnic groups across the three groups of women accounting for at least 90 percent of women in each group. The prevalence of polygyny declined from 45 percent in 1995 to 36 percent in 2003 and on average women were younger (30 years) in 2003 than in 1995 (32 years). However, women who were interviewed in both surveys were much older at 36 years than the other two groups of women. Again, women interviewed in both surveys had more children ever born on average (at 3.8) compared with those interviewed only in 1995 (at 3.5) and 2003 (at 2.8). To a large extent, the characteristics of all women interviewed in 1995 and 2003 do not differ much with those of the target sample for 1995 and 2003.

Switching of Religions

The general trend in religious affiliation annually between 1995 and 2003 for all women shows that the

percentage of traditionalists has declined. This information is summarized by Figure 1. Analysis of the longitudinal data for men (results not presented here) shows that the decline in the percent of traditionalists is more apparent among women than men. Among women, most of the change represents a shift to Christianity while the proportion of all individuals practicing Islam remained fairly stable.

Figure 1 about here

When we examined responses from women from all the religious groups to identify which switching patterns emerge (see Figure 2), the highest percentage of switchers is observed among traditionalists (to Christianity) at 31 percent followed by Christians (to traditional) at 14 percent and traditionalists (to Islam) at 8 percent. Other smaller percentages of switchers are observed among Christians (to Islam) at 3 percent and roughly similar percentages for Muslims switching to traditional and Christianity. Thirty-nine percent of all women did not change their religion. Among women who did not change their religion, about 19 percent each were Christians and traditionalists and about 0.6 percent were Muslims. In brief, two patterns seem to evolve among traditionalists and Christians: the former are switching to Christianity more than the latter moving to the former.

Figure 2 about here

Turning to the baseline characteristics of religious switchers and non-switchers (1995–2003) (see Table 2) by the major religions shows that there are negligible differences among the different switchers and non-switchers in terms of their age. For example, among traditional switchers switching to Christianity their mean age is 29 years whereas those switching to Islam is 28 years. For non-switchers, the mean age is 28 years. Average parity is higher among traditional switchers at three children than among Christian switchers signaling higher fertility among traditional switchers. Non-switchers have almost three children born on average which is similar to the traditional and Christian switchers. In terms of education, we observe switching among traditional switchers who have never

been to school which supports our notion that there is a myriad of underlying forces leading to religious switching and ultimately affecting reproductive behavior.

<div align="center">*Table 2 about here*</div>

Multivariate Analysis

The dependent variable examined in our analysis is the desire to limit fertility in 2003 (yes, no). The key independent variable in this analysis is shift in religious affiliation. We use logit regression models to test whether religious switching has an influence on the desire to limit fertility before and after controlling for baseline socio-demographic characteristics. In our logit model, we control for the following selected baseline characteristics: desire to limit fertility at baseline, ethnicity, whether husband and respondent have some schooling, respondent's age, type of marital union (i.e., polygamous or not), and current use of contraceptives. Other control variables include ethnicity and age. Results of the logit regression models are presented in Table 3.

<div align="center">*Table 3 about here*</div>

Model 1 of Table 3 presents odds ratios (ORs) for the impact of shifts in religions affiliation on desire to limit fertility. For shift in religious affiliation, we observe that the odds of desire to limit fertility among Christians who switched to Islam are 3.59 relative to traditionalists who did not switch. For Christian women who did not switch their religion, the odds of desire to limit fertility are 1.49 relative to traditionalists who did not switch. Women switching from traditional religion to Christianity were associated with odds that almost double relative to traditional non-switchers (1.61). Switching from traditional religion to Islam is associated with odds that are 1.41. Odds for the switching from Islam to Christianity almost doubles at 1.97 relative to traditional non-switchers. However, women who switch from Islam to traditional religion are less likely to have the desire to limit their fertility as evidenced by reduced odds (0.49). In Model 2 where we control for other

covariates we find that none of the controls are significant and the estimates on the effect of religious shifts on desire to limit fertility are still robust and in the same direction as reported in Model 1. These results confirm our hypothesis that traditionalists are less likely to practice fertility-limiting behavior and that shifts from traditional religion enhance prospects for contraceptive use and fertility decline.

Conclusions

Much has been written about the role of African social and economic institutions in constraining contraceptive adoption (see, for example, Caldwell and Caldwell, 1987; Caldwell et al. 1992). Rural northern Ghana has witnessed major changes in recent decades. This study has marshaled longitudinal data to test the proposition that transitions in traditional religious beliefs are associated with corresponding evidence of transitions in reproductive behavior. Stated changes in religious affiliation undoubtedly signify many other concomitant social changes. In recent decades, mounting poverty and declining agricultural productivity have led to high rates of migration to cities and towns, particularly among youth. This has exposed once isolated communities to new ideas and new economic opportunities. In KND, exposure to southern Ghanaian cities, ideas, languages, and educational norms has been stimulated by the construction of a road that transects the district and by the consequent development of Navrongo town as a market for agricultural goods. Changes that have opened the locality to commerce have also enhanced the accessibility of communities to Pentecostal and other missionaries from southern Ghana. Radio use and other communications have opened the locality to new ideas and activities. Generalized social change associated with these economic changes undoubtedly explains much of the increased contraceptive use and reduction in the total number of children born in the district and may also contribute to the transformation of

religious practices. Thus, the role of religion as a determinant of changing reproductive behavior is difficult to disentangle from other underlying influences.

Nonetheless, the strong association of the desire to limit fertility with the shift in religious practices from traditional to Christianity and Islam; and also from Islam to Christianity and vicersa suggests that the practice of traditional religion and related social institutional changes may have had a diminishing role in constraining contraceptive adoption and use. African traditions subordinate individual agency to the corporate family and kindred norms and customs. Religions that are growing in the locality stress the importance of individual agency in ways that may diminish the role of traditional institutional determinants of reproduction. Religion represents an indicator of the erosion of the behavioral effects of traditional social institutions but also may be a manifestation of economic pressures whereby individuals seek God as a solution to their problems. These social changes, as demonstrated in this paper by the effect of shifts in religion, are associated with concomitant changes in reproductive behavior.

Notes

1   Although this discussion underscores the need to include male partner's religion in studies of contraceptive use and fertility, our study is limited due to the lack of information on husband's religion in the data as discussed in a later section. To partly address this problem, we use type of marital union as a proxy for husband religion since largely, traditionalists practice polygamy in KND.

2   The Demographic and Health Survey and other surveys are based on self-reported use, and are subject to the kinds of bias that are operating when such questions are asked in rural traditional settings where contraceptive use is the exception rather than the norm (Biddlecom and Fapohunda 1998).

3   In the local dialect, the translation for "zurugelu" is *Alag gube ndekewgo*, which means "cooperating together is strength" or "community togetherness." This term is roughly equivalent to the Swahili word referring to the *harambee* spirit, used in Kenya to describe community activities requiring solidarity and volunteerism (Binka et al, 1995).

4   Hereafter the 1995 panel survey will be used interchangeably with "the baseline survey".

5   This assumes that age reporting in the sample is perfect.

6   For example, we consider women who were aged 15 in 1995 and are aged 23 in 2003. Their fertility behavior may be very sensitive to social changes such as the experiment compared with women who were aged 41 in 1995 and are now aged 49 in 2002.

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Acknowledgments

Table 1   Percentage distribution of women interviewed between 1995 and 2003 by selected characteristics, KND, northern Ghana

Characteristics	Total sample		Target sample for 1995-2003		
	All women (15-49) in 1995	All women (15-49) in 2003	All women (15-41) in 1995 only	All women (23-49) in 2003 only	Linked 1995 and 2003‡
Desire to limit fertility					
Yes	9.7	22.7	10.2	32.6	33.9
No	76.6	66.0	76.8	52.3	53.2
Infecund	1.2	1.8	1.2	2.6	2.5
Undecided	5.2	3.7	4.7	5.7	4.0
Not applicable	7.3	5.9	7.1	6.8	6.4
Currently using contraceptives†					
Yes	8.8	12.3	9.1	17.0	15.6
No	91.2	87.7	90.9	83.0	84.4
Religion					
Traditional	60.5	29.3	58.0	37.6	36.2
Christian	34.7	63.6	37.3	55.0	52.3
Islam	4.8	7.1	4.7	7.4	11.5
Marital status					
Never married	13.8	28.0	16.8	5.0	6.2
Married*	74.2	58.9	79.0	76.5	74.7
Divorced/separated	4.1	4.7	1.7	5.9	6.9
Widowed	7.9	8.5	2.5	12.7	12.3
Education					
None	69.4	49.9	65.4	64.6	61.4
Primary	19.1	25.1	21.3	20.4	20.1
Secondary+	11.5	25.0	13.3	15.0	18.5
Ethnicity					
Kassena	52.2	51.3	52.3	53.2	56.9
Nankana	41.5	41.7	41.7	39.4	38.9
Bulsa	4.4	4.6	4.1	5.4	0.9
Other	1.8	2.4	1.8	1.9	3.4
In polygamous union					
Yes	44.6	35.3	42.4	37.9	36.3
No	55.4	64.7	57.6	62.1	63.7
Mean age	31.5	30.1	28.1	36.1	35.5
Mean parity	3.5	2.8	2.9	4.0	3.8
N	**5,288**	**5,842**	**4,270**	**3,911**	**2,033**

Notes: *Includes those living together; Some percentages may not add up to 100 due to rounding or responses restricted to specific categories; †Excludes pregnant women; ‡Information based on the 2003 survey.

Figure 1   Composition of all women aged 15-49 by religion and survey year, 1995–2003

Legend:
- Traditional
- Christianity
- Islam

Y-axis: Percent (0–70)
X-axis: Survey Year

1995: Traditional 60.5, Christianity 34.7, Islam 4.8
2003: Traditional 29.3, Christianity 63.6, Islam 7.1
Both 1995 and 2003 (As reported in 2003): Traditional 36.2, Christianity 52.3, Islam 11.5
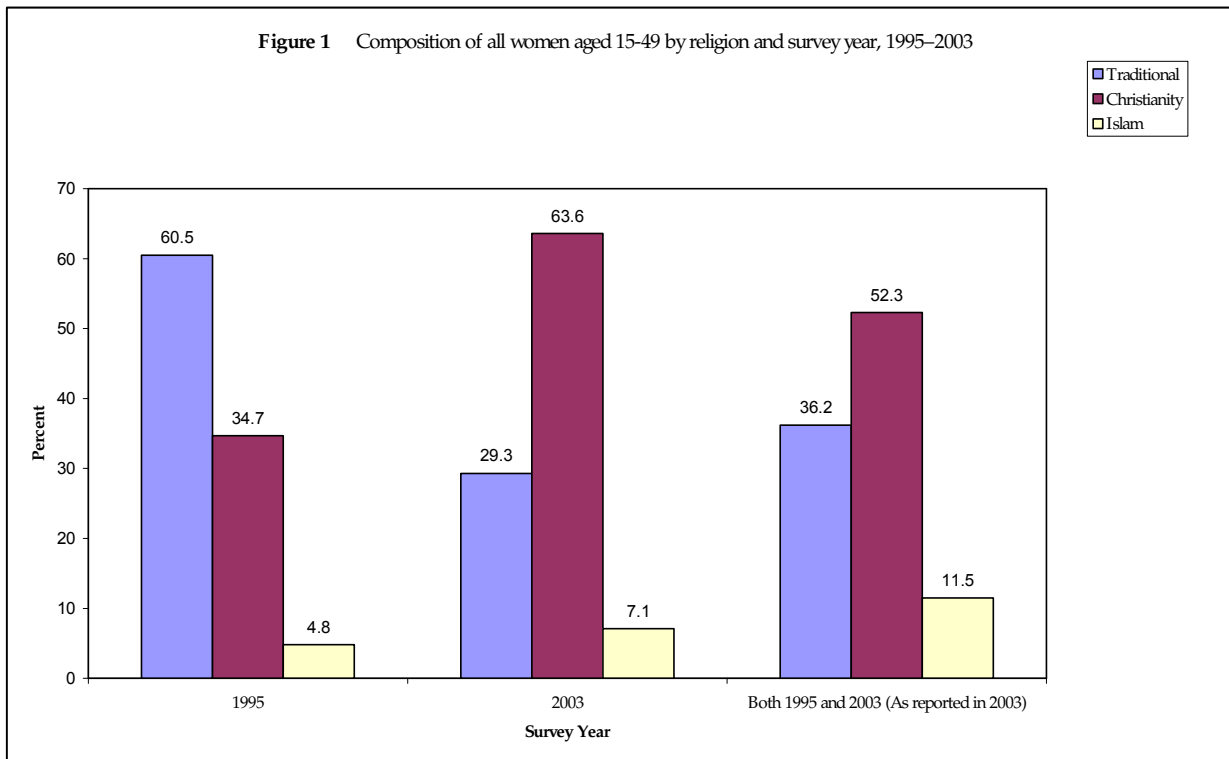
Figure 2. Shifts in religious affiliation among 2,033 women interviewed in 1995 and 2003

Y-axis: Percent (0–35)
X-axis: Type of Shift

- Christianity - no shift: 19.04
- Christianity to Traditional: 13.97
- Christianity to Islam: 3.34
- Traditional - no shift: 19.33
- Traditional to Christianity: 30.74
- Traditional to Islam: 7.48
- Islam - no shift: 0.64
- Islam to Christianity: 2.56
- Islam to Traditional: 2.90

Table 2. Selected baseline characteristics of religious switchers and non-switchers. All numbers are in percent unless otherwise stated.

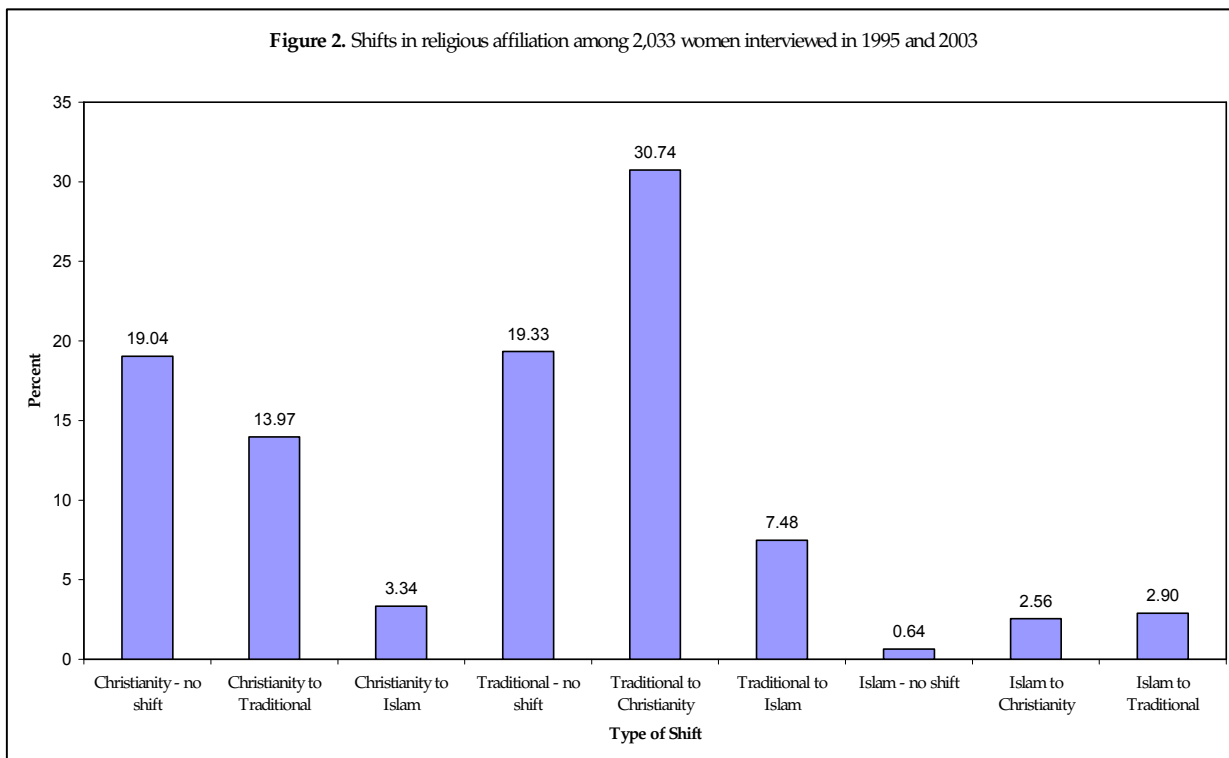| Characteristics	Traditional switchers		Christianity switchers		Moslem switchers		Non-switchers
	To Christianity	To Islam	To Traditional	To Islam	To Christianity	To Traditional	
Mean age	29.01	28.13	26.64	25.38	27.58	26.24	27.69
Mean children ever born	3.15	3.13	2.37	2.07	3.06	2.32	2.70
In polygamous union?							
No	47.52	40.79	45.07	38.24	51.92	33.90	52.08
Yes	41.92	44.08	29.58	35.29	32.69	54.24	30.90
Never married	10.56	15.13	25.35	26.47	15.38	11.86	17.02
Ever been to school?							
No	79.52	85.53	43.31	55.88	46.15	50.85	60.91
Yes	20.48	14.47	56.69	44.12	53.85	49.15	39.09
Current use of contraceptives							
No	82.24	78.95	73.85	76.47	76.92	79.66	75.51
Yes	4.48	4.61	12.37	2.94	17.31	11.86	9.09
Not applicable	13.28	16.45	13.78	20.59	5.77	8.47	15.40
N	625	152	284	68	52	59	793

Table 3   Logistic regression results (odds ratios) of desire to limit fertility on shift in respondent's religious affiliation and other baseline characteristics.

Covariates	Odds ratios	
	Model 1	**Model 2**
Shift in religion		
Traditional non-switchers (r)	1.00	1.00
Christianity to traditional	0.91	0.90
Christianity to Islam	3.59***	2.90**
Christian non-switchers	1.49**	1.68**
Traditional to Christianity	1.61***	1.62**
Traditional to Islam	1.41*	1.54*
Islam non-switchers	2.07	2.51
Islam to Christianity	1.97*	2.24*
Islam to traditional	0.49**	0.45**
Desire to limit fertility at baseline		
No (r)		1.00
Yes		0.83
Ethnicity		
Kassena (r)		1.00
Nankana		0.97
Bulsa and Other		0.96
Husband has some schooling?		
No (r)		1.00
Yes		1.21
Respondent has some schooling?		
No (r)		1.00
Yes		0.86
Age group		
15–24 (r)		1.00
25–34		0.92
35–41		1.01
In polygamous union		
No (r)		1.00
Yes		0.99
Current use of contraceptives		
No (r)		1.00
Yes		0.95
Number of women	*1,850*	*1,212*
Log-likelihood	*-1197.57*	*-793.72*
LR chi^2 (degrees of freedom)	*47.43*	*38.27*
Prob > chi^2	*0.00*	*0.00*

Notes: *p≤0.10; **p≤0.05; ***p≤0.01; "r" – reference category; Women who did not shift their Religion comprise of 39% (n=793) of the sample (see Figure 2); Desire to limit fertility excludes the "infecund", "undecided" and "not applicable" categories reported in Table 1.