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PREMARITAL FERTILITY AND ETHNICITY IN AFRICA

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- To expand the international population and health database;
- To advance survey methodology; and
- To develop in participating countries the skills and resources necessary to conduct high-quality demographic and health surveys.

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DHS Comparative Reports No. 13

Premarital Fertility and Ethnicity in Africa

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In memory of Etienne van de Walle,
A pioneer in the study of
African nuptiality and fertility.

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Preface

One of the most significant contributions of the MEASURE DHS program is the creation of an internationally comparable body of data on the demographic and health characteristics of populations in developing countries. The DHS Comparative Reports series examines these data across countries in a comparative framework, and is primarily descriptive. The DHS Analytical Studies series focuses on technical analysis of specific topics. The principal objectives of both series are to provide information for policy formulation at the international level and to examine individual country results in an international context.

DHS Comparative Reports covers a variable number of countries, depending on the availability of datasets. Where possible, data from previous DHS surveys are used to evaluate trends over time. Each report provides detailed tables and graphs organized by region. Survey-related issues such as questionnaire comparability, survey procedures, data quality, and methodological approaches are addressed as needed.

The topics covered in the DHS Comparative Reports series are selected by MEASURE DHS staff in conjunction with the U.S. Agency for International Development. Some reports are updates of previously published reports.

It is anticipated that the availability of comparable information for a large number of developing countries will enhance the understanding of important issues in the field of international population and health by analysts and policymakers.

Martin Vaessen
Project Director

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Executive Summary

Premarital fertility, defined as giving birth before a woman's first marriage, is prevalent in sub-Saharan Africa. According to DHS data from surveys in 25 countries, an average of one in five women has a birth before marriage. The prevalence of premarital fertility varies markedly, ranging from 2.4 to 60.2 percent in the countries covered. The variation is even greater by ethnic group, ranging from 0.1 to 76.2 percent. The level of premarital fertility is determined by a number of factors including age at first marriage, age at first intercourse, contraceptive use, and various cultural factors; and all of these factors vary by ethnicity. An analysis of 263 ethnic groups shows that age at first marriage is by far the most important factor. Variables linked to modernization—urban residence, modern education, wealth, and Christianity—have positive correlations with premarital fertility, whereas living in a polygynous union and being Muslim have negative correlations. Even taking into account demographic and socioeconomic factors, variations in the level of premarital fertility are substantial, indicating the strong effect of cultural factors. The demographic evidence presented in this analysis is consistent with the ethnographic record, which distinguishes between societies that are culturally conservative and societies that are more open and permissive. The Appendix presents detailed information on premarital fertility by ethnicity for the countries in the study.

1 Introduction

Premarital fertility, defined as giving birth before a woman's first marriage, was of considerable interest to Europeans when they encountered African societies in the nineteenth and early twentieth centuries. Most Europeans came from cultures in which premarital sexual intercourse and premarital childbirth were highly stigmatized and repressed, and where marriage was strictly regulated, whether by civil law or by Christian religion. In Africa, they found a diversity of cultures that had very different world views about sexual intercourse and childbirth before marriage. Furthermore, marriage in Africa was guided by custom, with no equivalent to a marriage certificate. There was no official point in time before which intercourse or childbirth could be considered premarital. Marriage was a social process, an alliance between families or social groups. At the same time, marriage in African societies did follow clear rules, the rules were just different from those of European societies (Radcliffe-Brown and Forde, 1950; van de Walle, 1968). Observers of African cultures wrote extensively about premarital sexual relations and their relationship to marriage. For example, Grandidier (1913) described patterns of marriage and fertility at the turn of the twentieth century in Madagascar and presented numerous accounts of permissiveness toward premarital sexual behavior: some groups considered it normal for a woman to give birth before her first marriage. He further noted that permissiveness varied among ethnic groups, and also by social class. These patterns seem to have been resistant to change because, a century later, similar patterns were found in demographic survey data (Garenne and Zwang, 2005).

Ethnographers working in Africa in the first part of the twentieth century spent considerable time and effort describing patterns of marriage and sexual permissiveness. There does not appear to be any review or synthesis of this abundant literature with regard to premarital fertility. However, in his classic work, *Ethnographic Atlas*, Murdock (1967) uses a series of characteristics taken from ethnographic literature to describe attitudes toward premarital sexual intercourse in different ethnic groups. Attitudes were categorized, ranging from very permissive to very repressive: (F) premarital sexual relations freely permitted and subject to no sanctions; (A) premarital sexual relations allowed, not sanctioned unless pregnancy results; (P) premarital sexual relations prohibited, but weakly sanctioned; (T) trial marriage; promiscuous relations prohibited; (E) premarital sexual relations precluded by very early age at marriage for females; (V) insistence on virginity; premarital sexual relations prohibited.[1] In his synthesis, Murdock analyzed 277 ethnic groups from sub-Saharan Africa. Only 114 (41 percent) had information on norms of sexual behavior. A majority of these (53 percent) were categorized as "permissive" (groups A and F); a smaller number (15 percent) were considered "tolerant" (group P); and the remainder (34 percent) were seen as "restrictive" (groups E and V). Those in the restrictive category included cultures with very early age at marriage for females and those with strong sanctions on premarital sexual relations. This overview points up the ethnographic diversity found in sub-Saharan Africa, which accounts for the diverse patterns of premarital fertility that emerge from demographic surveys. This diversity contrasts markedly with North African and European populations, for whom permissiveness has traditionally been rare. In the same Ethnographic Atlas, only one group in North Africa—the Tamasheq Kel Antessar in Southern Sahara—and only one small group in central Europe, fall into the (F) category.

[1] While Murdock distinguished six categories of "norms of premarital sexual behavior," only five pertain to Africa: F, A, P, E, V.

The aim of this study is to examine the variations in levels of premarital fertility by ethnicity in sub-Saharan Africa. Much of the information on marriage, fertility, and ethnicity came from DHS datasets provided by the MEASURE DHS project. The main reason for emphasizing ethnicity stems from case studies conducted by the authors in South Africa, Namibia, and Madagascar. The research showed that ethnicity was the primary source of differential behavior in premarital fertility, and was much more important than socioeconomic factors such as urbanization, education, wealth, or religion (Garenne et al., 2000; Garenne and Zwang, 2004; Garenne and Zwang, 2005; Zwang, 2004). This study goes beyond a description of the differentials in premarital fertility by analyzing the relationship between premarital fertility and socioeconomic determinants such as urbanization, education, wealth, and religion. From this perspective, it is an extension of previous research on the determinants of age at marriage in sub-Saharan Africa (Garenne, 2004).

2 Data and Methods

2.1 Datasets

A11 World Fertility Surveys (WFS) and Demographic and Health Surveys (DHS) that were available in early 2005 were considered for this study. Surveys with samples based only on ever-married women and surveys without information on ethnicity were excluded. When several surveys were available for the same country, only those in which the coding of ethnicity was explicit and consistent were kept for final analysis. Information about the surveys kept for final analysis is shown by country in the Appendix, along with the reasons given for the choices. When several compatible surveys were selected in the same country, the computations regarding premarital fertility were made on the combined dataset. The main reason for combining datasets was to increase the sample size of ethnic groups in the country. Final results are provided at the country level only. The analysis covers 25 sub-Saharan countries, which accounts for a large proportion (about 75 percent) of the total population of the region.

2.2 Ethnicity in DHS Surveys

DHS surveys have been conducted in 32 African countries but several surveys did not include information on ethnicity. Also, while some surveys included information on ethnicity, they differed in the characterization of ethnic groups and in the level of detail provided. Some surveys (such as those in Zambia) included a comprehensive list of all of the ethnolinguistic groups while others (such as those in Senegal) included only a list of the largest groups, ignoring small minorities. Another group of surveys (such as those in Mali) included a short list of the main ethnic groups, and a large "other" category. In some cases, only large language families were provided (such as in Togo), and in a few surveys in Southern Africa, only race was included (such as in Zimbabwe).

Information on ethnicity in DHS surveys is usually provided by the V131 variable of the Individual Recode file, although it appears in the S-section of country-specific variables in some surveys. In one case (Uganda 2001), the information was contained in the Household Recode file as the language in each cluster. In this case we merged the cluster with the individual file to determine the ethnicity of the person interviewed.

Some countries recorded ethnicity confidentially in the questionnaires, and the labels of the ethnic groups were not available in the dataset code book. In some cases the labels could be retrieved from other information, such as language spoken, but in others the analysis had to be cancelled.

Lastly, some surveys provided only the language usually spoken by the respondent as the sole information on ethnicity. This information was used in a few cases. However, information on the language used for the interview was not considered in this study because it may not reflect correct ethnic identity. Each case is detailed in the Appendix by country and survey.

In some countries, when the necessary information was available, the ethnic distribution obtained from the DHS surveys was compared with the distribution obtained from the national censuses. Another source of information was the Ethnologue database, which provides names, locations, and population sizes of virtually all ethnolinguistic groups in Africa (Gordon, 2005).

In terms of sample size, the cluster sampling method used in DHS surveys is unlikely to provide an accurate ethnic distribution in a country. Many clusters are likely to be ethnic-specific and, as a result, the ethnic distribution may show overestimates or underestimates, according to chance. It would be cumbersome to try to estimate the biases involved because they depend on the ethnic distribution in each

enumeration area. However, since the emphasis of this study is on the specificity of ethnic groups, minor variations in sample size are unlikely to affect the main results.

The spelling of ethnic groups was kept as indicated in the DHS code books. Some groups have English spelling; others have French or Portuguese spelling. Some ethnic group labels differ from those in the classical ethnographic literature, but no attempt was made to correct them.

2.3 Sample Size and Grouping of Datasets

In many countries, more than one survey was conducted. When possible, the surveys were grouped together to increase the sample size of small groups and to reduce the confidence intervals associated with the prevalence of premarital fertility. This was done only in cases where the coding was consistent from survey to survey. Each case is detailed in the Appendix.

A main limitation of the analysis of ethnicity in DHS surveys is sample size. The typical DHS survey has a sample of about 7,000 women. A minority group that makes up only 1 percent of the population will have only 70 women surveyed. This was considered too small a sample for this demographic analysis. Therefore, after grouping surveys in a country, ethnic groups with at least 250 women were kept for analysis. This allowed even small groups to be included in countries where two or more surveys were conducted. A sample of 250 women will provide reasonable confidence intervals for the prevalence of premarital fertility. For example, a prevalence of 20 percent and a sample of 250 women give a 95 percent confidence interval of 15.1 to 24.9 percent, which still allows a distinction between low, medium, and high levels of premarital fertility. Of course, larger sample sizes are desirable for finer estimation; however, because the aim of the study was to analyze ethnic diversity, it was preferable to include small groups with a wider confidence interval rather than ignore them. In a few cases, even smaller groups (such as the Twa in Rwanda) were included when they had special significance for ethnographic reasons. Proper testing of differences between groups is sometimes done after controlling for other factors. Readers who wish to do their own testing can do so using the tables in the Appendix, which include sample size. It is recommended to use simple testing based on sample size (unweighted number of women interviewed)—assuming random distribution of women within ethnic group—and to ignore the design effect associated with cluster sampling. This is suggested because most clusters in Africa are likely to be ethnic-specific.

In the analysis of ethnicity, priority was given to specificity: well-defined groups were considered individually while others were lumped together in the "other and unknown" category. This was considered more informative than attempting to group them by language families or by geographical proximity. However, in cases of high ethnic diversity (such as in Nigeria and Cameroon), small ethnic groups were lumped together by geographical area, following the main divisions of the country.

2.4 Prevalence of Premarital Fertility

The DHS definition of marriage was used in this report for consistency. In DHS surveys, a woman is considered married if she is formally married (civil or religious union)[2] or if she is in an informal union (living together). For a discussion of discrepancies in African surveys regarding "married" and "in union," see Garenne (2004). Terminal celibacy is defined as the probability of never marrying by age 50. It is approximated by the proportion of never-married women age 40-49 at the time of the survey.

The Appendix shows two indicators of the prevalence of premarital fertility.[3] The first is the prevalence of premarital births, defined as the proportion of all births that occurred before the first

[2] Includes customary marriages

[3] Almost all DHS surveys interview women age 15-49 only and collect retrospective maternity histories.

marriage. Dates are counted in months and years, as defined by the century month code (CMC) system of the DHS surveys (corresponding variables are V509 for first marriage and V211 for first birth). The second is the proportion of women who have had a premarital birth to all women who have ever given birth or who have ever been married. (Never-married women who never had a live birth were excluded from the calculations.)[4] The prevalence of premarital intercourse, defined as the proportion of women who had intercourse before their first marriage (V525 variable), was calculated wherever possible.

Median age at first marriage was calculated by selecting all women age 25 and over and determining the age at which 50 percent of the women in each cohort were ever married. Because some women will never marry, this definition differs from the formal definition of median age at first marriage, which uses ever-married women as the population base. It is also different from mean age at first marriage, which is computed from life table analysis. In most cases the three values were found to be equivalent. Calculating life table estimates for each ethnic group would be cumbersome and would lead to erratic estimates in small ethnic groups.

2.5 Socioeconomic Variables

Several socioeconomic variables were considered as potential determinants of level of premarital fertility. Urban residence was measured by the proportion of interviewed women living in urban areas. This figure in DHS surveys sometimes varied substantially from the proportion urban as reported by the national census. Because of the cluster sampling method used in DHS surveys, some clusters for selected ethnic groups can end up primarily in one or the other residence categories (urban or rural). This introduces bias into the calculation of prevalence of premarital fertility for small ethnic groups. However, because this study focuses on diversity, the bias probably does not have much effect on the analysis.

Religion was taken as reported in the DHS surveys, and grouped into three categories: Muslims, Christians, and "other and unknown." First analyses revealed only minor differences among Christian groups (Protestants versus Catholics), although the distinction can be a major source of differentials when associated with other characteristics, as occurred in the case of Madagascar (Garenne and Zwang, 2004). Analyzing traditional religion is beyond the scope of this paper, and DHS surveys do not provide details on local religions, which are usually grouped under labels such as "traditional religion," "animist," or "spiritualist."

A wealth index was developed for this study, although it follows a model described elsewhere (Garenne and Hohmann, 2003). It is the sum of a group of dummy variables that count modern goods and amenities in the household. The wealth index was calculated the same way for all of the surveys so that it could be used comparatively and averaged for ethnic groups. It therefore differs from the DHS wealth index provided by some DHS surveys, which is based on principal components and wealth quintiles. Other data used for this analysis were straightforward and derived directly from the survey. Level of education was measured by the mean number of years of schooling (V133). Because use of a contraceptive method might be an important element in premarital fertility, "knowledge of any modern method" (V301), "ever use of any modern method" (V302), and "current use of any modern method" (V303) were considered separately. Use of contraception was examined only for women who had ever had intercourse and were never married—that is, use of contraception during the risk period for premarital births. Modern contraceptive methods were selected because they have the largest effect on unwanted pregnancies.

[4] The two indicators refer to live premarital births; premarital pregnancies that resulted in miscarriage or abortion are not included.

2.6 Methodology

Premarital fertility is a period-specific measure of births that occur before marriage. The period of risk for premarital births is the interval between first intercourse and first marriage. Premarital fertility is the product of a series of demographic behaviors: first intercourse, first marriage, contraceptive use, and abstinence between first intercourse and first marriage. The prevalence of premarital births in a group is likely to be positively correlated with age at marriage, and negatively correlated with age at first intercourse and use of modern contraceptive methods. These demographic factors have a structural effect on premarital fertility. Other variables, labeled "socioeconomic determinants," affect these intermediate variables, as well as attitudes. These include ethnicity, religion, urban-rural residence, level of education, polygyny, and wealth.

This analysis aims to describe differentials in the prevalence of premarital fertility by ethnicity as well as by demographic and socioeconomic factors. While some of the analysis could have been done using individual-level data, the use of ethnic group as the unit of analysis offered the opportunity to include several factors that could not otherwise be included—in particular, age at first marriage and level of contraceptive use. These were found to be major factors determining premarital fertility at the group level, but were inappropriate at the individual level. For example, if a woman is never married but had a premarital birth, she does not have an age at marriage.

3 Results

3.1 Samples of Ethnic Groups

Of the 51 countries in sub-Saharan Africa, 32 were covered by DHS surveys and 25 of these surveys had information on ethnicity (see Table 3.1). Altogether, 43 surveys were included in the analysis, 8 of which were WFS surveys and 35 were DHS surveys. Some 2,104 ethnic groups are included in the Ethnologue database for Africa, which is the most extensive count. It corresponds to an average of 310,600 persons per ethnic group, with populations ranging from a few individuals to several million.

In the 43 surveys analyzed, 263 ethnic groups were kept for final analysis. They were usually the larger groups, and their average population size was more than five times that of the average group size for the whole set. DHS surveys primarily include large groups, whereas the ethnographic literature tends to emphasize small, well-defined groups with specific cultural characteristics.

After grouping surveys, the average sample size per country was 12,915 women interviewed. The overall average of 1,228 women interviewed per ethnic group is an appropriate sample size for many demographic estimates, including premarital fertility.

Table 3.1 Ethnic groups in sub-Saharan Africa: Information from population and survey data, various sources including WFS and DHS national sample surveys

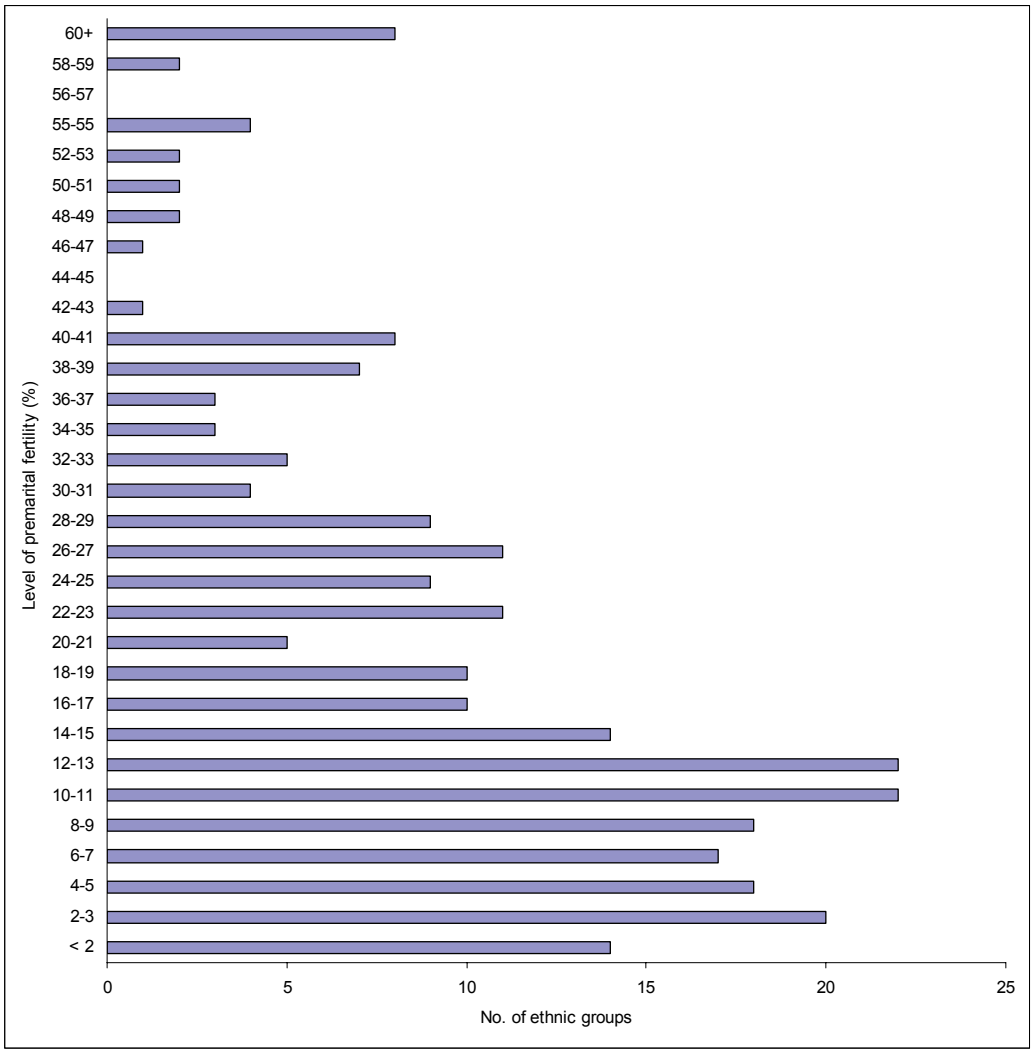
Characteristic	Total sub-Saharan Africa	Coverage of DHS surveys	
		Total	Information on ethnicity
Total population			
Number of countries	51	32	25
Number of ethnic groups	2,104[a]	1,804	1,648
Population covered (millions)	653.6[b]	562.2	491.6
Mean size of ethnic groups	310,600[c]	311,600	298,300
Sample surveys (DHS, WFS)		DHS and WFS surveys analyzed	
Number of surveys analyzed		43	
Number of ethnic groups		263	
Mean population size per group		1,621,200	
Average survey sample size (number of women interviewed)		12,915	
Mean number of women interviewed per ethnic group		1,228	

[a] Ethnologue database (Gordon, 2005)
[b] Population in year 2000 (United Nations, Population Division)
[c] Mean size = population/number of ethnic groups

3.2 Premarital Fertility by Ethnicity

The prevalence of premarital fertility, defined as the proportion of women who had a premarital birth, varies considerably among the 263 ethnic groups examined, from 0.1 percent (Kanem-Bornou in Chad) to 76.2 percent (Herero in Namibia). The wide range is illustrated in Figure 3.1. The distribution of ethnic groups by premarital fertility is complex and does not follow a simple statistical distribution; instead, it shows wide heterogeneity. At one end of the range are low levels of premarital fertility, which could be interpreted (in repressive societies) as accidents or as deviant behavior by a small proportion of the population. A second group clusters between 10 and 13 percent; another group is 22 to 27 percent; another group is 38 to 41 percent; and a number of ethnic groups have very high levels of premarital fertility (50 percent and above). Such a wide range of prevalence of premarital fertility reflects the wide variety of behavioral norms described in the ethnographic literature, from societies that require girls to marry right after puberty—in which case premarital fertility is virtually impossible—to societies in which marriage occurs late and premarital intercourse is permitted.

Figure 3.1 Distribution of ethnic groups according to the prevalence of premarital fertility, 25 countries in sub-Saharan Africa



Five levels of premarital fertility can be defined: "Very Low" for levels below 9.0 percent, with an average of 4.7 percent; "Low" from 9.0 to 14.9 percent, with an average of 12.1 percent; "Medium" from 15.0 to 29.9 percent, with an average of 22.0 percent; "High" from 30.0 to 49.9 percent, with an average of 38.6 percent, and "Very high" above 50.0 percent, with an average of 66.5 percent (Table 3.2). The mean population size of ethnic groups did not indicate a linear relationship with level of premarital fertility; permissive and repressive behaviors were found in small and large groups alike.

Table 3.2 Distribution of ethnic groups by level of premarital fertility, sub-Saharan Africa

Level of premarital fertility	Range (%)	Number of ethnic groups	Mean population per group	Mean level of premarital fertility (%)
Very low	< 9	81	1,969,661	4.7
Low	9-14	57	1,965,123	12.1
Medium	15-29	73	1,160,181	22.0
High	30-49	34	1,031,049	38.6
Very high	50+	18	1,949,115	66.5
Total		263	1,621,245	17.9

3.3 Comparison with the Ethnographic Literature

Estimates of the prevalence of premarital fertility by ethnicity in DHS surveys were matched with ethnographic characteristics in Murdock's Atlas (Table 3.3). Matching groups from the two sources was difficult because of the different ethnic categories and many missing values in the Atlas. Altogether, only 91 ethnic groups could be matched; of these, 36 had ethnographic details on premarital norms. Despite the low coverage, a pattern emerged. Groups who were more repressive (V and E) had lower premarital fertility (9.2 percent and 12.9 percent), intermediate groups (P) had medium values (15.8 percent), and groups classified as permissive (A and F) had higher values (37.9 percent and 20.0 percent). Even though the sample of selected ethnic groups was obviously biased and the sample sizes of some groups were small, the average of selected groups (17.7 percent) was close to the African average, and the demographic classification approximately matched the ethnographic typology.

Table 3.3 Norms of premarital sexual behavior in African ethnic groups from Murdock's Atlas, and relationship between ethnicity and the prevalence of premarital fertility in DHS surveys

	Norms of premarital sexual behavior	Number of groups in Atlas	Number of groups found in DHS surveys	Average percentage of women with a premarital birth
A	Premarital sexual relations allowed; no sanctions unless pregnancy results	12	4	37.9
F	Premarital sexual relations freely permitted; no sanctions	48	19	20.0
P	Premarital sexual relations prohibited; weak sanctions; not infrequent in fact	15	3	15.8
E	Premarital sexual relations precluded by early age at marriage for females	11	5	12.9
V	Insistence on virginity; premarital sexual relations prohibited; strong sanctions, rare in fact	28	5	9.2
	Total, stated	114	36	17.7
	Total, not stated	163	227	
	Total	277	263	17.7

Source: Murdock Atlas (1967) and DHS surveys

3.4 Demographic Factors and Socioeconomic Determinants

Correlations of premarital fertility with demographic factors are shown in Table 3.4. Premarital fertility is positively correlated with age at first marriage (+0.779), age at first intercourse (+0.217), and terminal celibacy (+0.687). The first and third correlations are straightforward because later marriage and lower levels of marriage are likely to result in an increase in premarital fertility. The second correlation shows the results of the selection effect: women who marry later and have first intercourse at the time of marriage have higher age at first intercourse. In fact, if age at marriage is controlled, the net effect of age of first intercourse becomes negative.

Table 3.4 Correlation of premarital fertility with demographic factors, modern contraception, and socioeconomic determinants, sub-Saharan Africa

Variables	Correlation coefficients	P-value	Significance
Demographic factors			
Age at first marriage	0.779	6.10E-55	*
Age at first intercourse	0.217	3.98E-04	*
Terminal celibacy	0.687	4.46E-38	*
Modern contraception			
Knowledge	0.319	1.30E-07	*
Ever use	0.496	9.79E-18	*
Current use	0.373	4.36E-10	*
Socioeconomic determinants			
Urbanization	0.456	6.80E-15	*
Education	0.692	9.45E-39	*
Wealth index	0.588	7.98E-26	*
Proportion Muslim	-0.436	1.29E-13	*
Proportion Christian	0.383	1.26E-10	*
Polygyny	-0.478	2.11E-16	*

$p = <0.05$

The effect of contraception is counterintuitive; all three variables (knowledge, ever use, and current use) had a positive correlation with premarital fertility, suggesting that greater use of contraception leads to higher fertility. Such a conclusion is the result of reverse causality because groups that have higher levels of premarital fertility are more likely to use contraception. So far, use of modern contraceptive methods before marriage has not had a large enough impact to allow women to prevent premarital births (assuming that this is their desire). Thus, the results in Table 3.4 imply that use of modern contraceptive methods is not an important factor in premarital fertility.

Four socioeconomic variables were found to have a positive correlation with premarital fertility: urban residence, level of education, wealth, and Christianity. The effect of these variables is related primarily to higher age at first marriage, but also increased terminal celibacy (Table 3.5).

The two remaining variables, Islam and polygyny, had negative correlations with premarital fertility. Here again, the effect is primarily related to nuptiality, particularly lower age at marriage, but also decreased terminal celibacy (Tables 3.4 and 3.5). Note that Islam and polygyny are correlated (0.493), and that both tend to encourage early and universal marriage for women.

An analysis of premarital fertility shows that socioeconomic determinants explain about half (57 percent) of the total variance. The rest is due to ethnicity, thus emphasizing the strong role of cultural factors in childbearing before marriage.

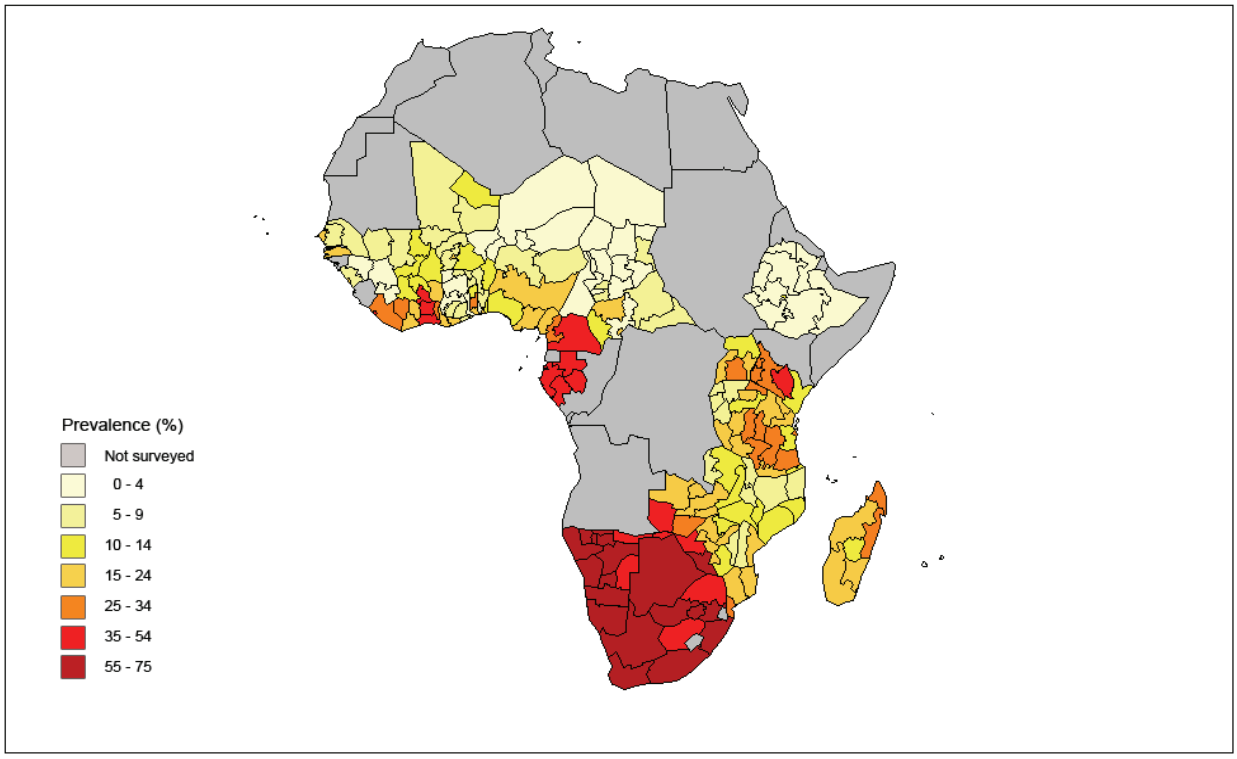
Table 3.5 Correlation coefficients between socioeconomic determinants and demographic factors, sub-Saharan Africa (N = 263 ethnic groups)

Socioeconomic determinants	Nuptiality			Modern contraception		
	Age at first marriage	Age at first intercourse	Terminal celibacy	Knowledge	Ever use	Current use
Urbanization (%)	0.358	0.112	0.270	0.290	0.338	0.173
Education (No. of years)	0.681	0.461	0.450	0.470	0.496	0.312
Wealth index	0.616	0.371	0.470	0.335	0.572	0.406
Muslim (%)	-0.458	-0.314	-0.265	-0.297	-0.328	-0.187
Christian (%)	0.422	0.339	0.220	0.382	0.322	0.158
Polygyny (%)	-0.523	-0.338	-0.430	-0.329	-0.304	-0.247

3.5 Geographical Patterns

All these factors interact to shape geographical patterns of premarital fertility. Details at the country level are provided in the Appendix and show great diversity in countries with complex social systems and numerous ethnic groups. Some regional patterns emerge. Prevalence of premarital fertility is low in the West African Sahelian areas, medium in coastal West Africa and in Eastern Africa, and high to very high in Southern Africa (Figure 3.2). In Sahelian West Africa, there is a gradient from the most conservative area in the central part of the region, primarily rural and Muslim, to the more urbanized West, with the exception of Mandinka and Poular areas in Northern Guinea, which appear to be very

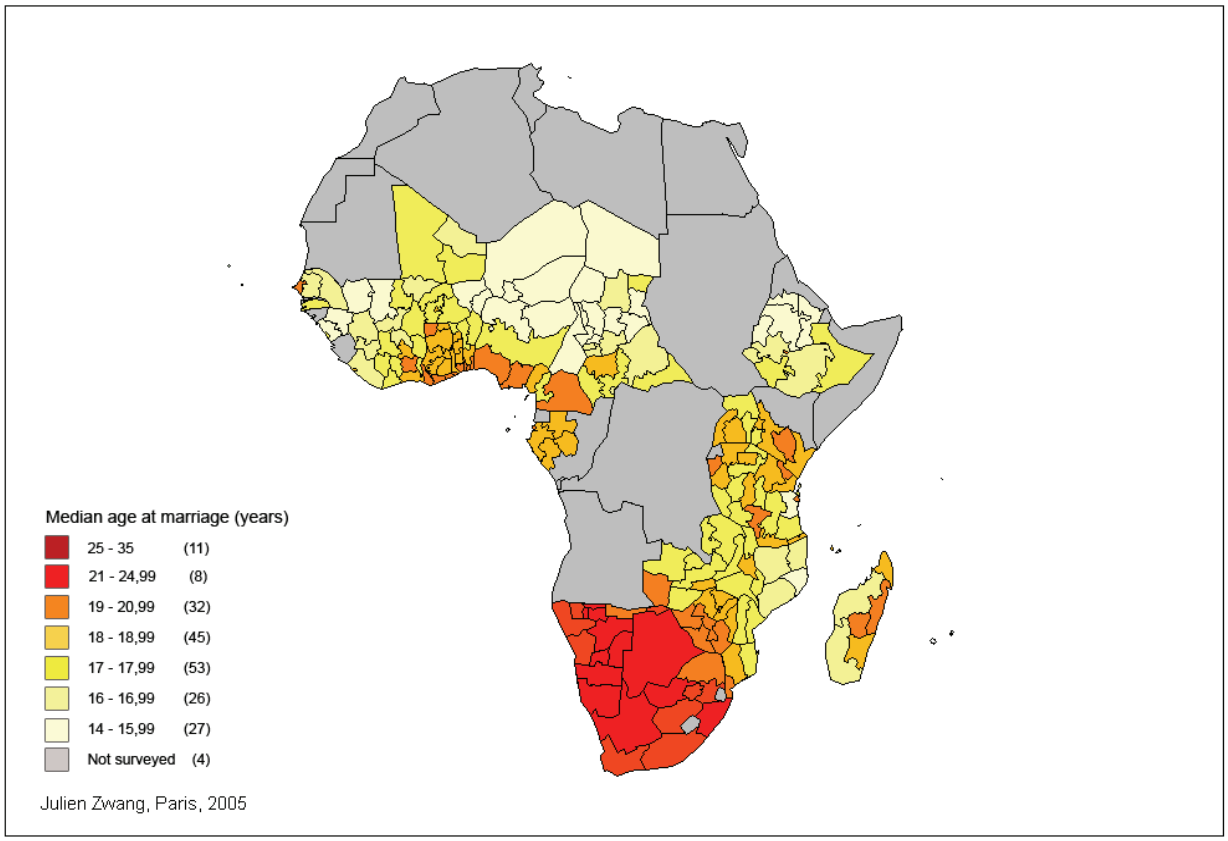
Figure 3.2 Prevalence of premarital fertility in Africa, by region



conservative. On the West African coast, Liberia and southern areas of Côte d'Ivoire appear as exceptions. In Central Africa, a pocket of high levels of premarital fertility ranges from southern Cameroon to Gabon. In Eastern Africa, pockets of higher premarital fertility are seen in southern Uganda, central Kenya and southern Tanzania. The highest levels of premarital fertility are found in Southern Africa; this includes Namibia, South Africa and Botswana, up to southern Zambia. In Madagascar, premarital fertility is more prevalent on the northeast coast and less prevalent in the central highlands.

The geographical patterns for the prevalence of premarital fertility in sub-Saharan Africa are related to the patterns for age at first marriage (Figure 3.3). However, some exceptions can be noted. Premarital fertility is low in Rwanda, Burundi, and central Madagascar at the same time that age at first marriage is high. In these countries contraceptive use is low and there is strong social control of young women.

Figure 3.3 Median age at first marriage in Africa, by region

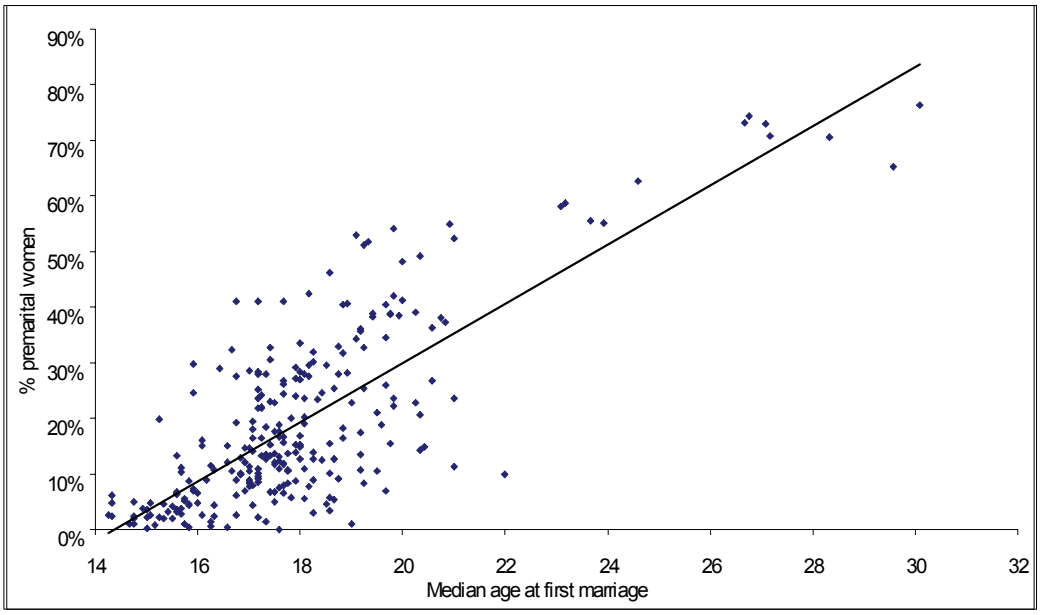


A better illustration of the relationship between premarital fertility and age at first marriage is seen in Figure 3.4. This figure reveals three situations:

- Very low age at marriage (<15 years), which correlates with very low premarital fertility (<10 percent).
- Very high age at marriage (≥22 years), which correlates with very high premarital fertility (≥50 percent).
- Intermediate levels of age at first marriage (15-21 years) with a wide range of levels of premarital fertility. For instance, around age 18, premarital fertility ranges from virtually 0 to 40 percent or more.

This case highlights the importance of cultural factors that are not explained by the socioeconomic variables examined in this study, and which reveal the different norms regarding premarital fertility that are associated with the various ethnic groups.

Figure 3.4 Relationship between prevalence of premarital fertility and median age at first marriage among 263 African ethnic groups



3.6 Outliers from Demographic Variables

Another way of showing how cultural factors shape the distribution of premarital fertility—beyond the effect of demographic factors—is looking at the outliers, groups that differ significantly from expected values based on median age at first marriage and median age at first intercourse.

The negative outliers are groups with lower-than-expected premarital fertility, which indicates a more repressive attitude toward women who give birth before marriage. Groups differing by more than 10 percent were found in several countries throughout Africa: many groups in Ghana (Akwapim, Asante, Ga-Adangbe, Fante, other Akan, Ewe, Guan, Mole-Dagbani, Grussi); several groups in southeastern Nigeria (Igbo, Ibibio, Annang, Ijaw, Urhobo) and the Yoruba; many groups in Malawi (Yao, Lomwe,

Chewa, Sena, Anyanja); several groups in the Central African Republic (Yakoma-Sango, Mandjia, Banda, Zande-Nzakara, Gbaya); several groups in Benin (Yoa and Lokpa, Adja, Fon, Betamaribe, Yoruba); and two groups in Tanzania (Makonde, Sukuma). The average prevalence of premarital fertility for these groups was 11 percent, which is half of what was expected (22 percent) based on age at first marriage and age at first intercourse.

The positive outliers are groups with higher-than-expected premarital fertility, which indicates a more permissive attitude toward women who give birth before marriage. Here again, groups differing by more than 10 percent were found throughout Africa: many groups in Liberia (Grebo, Vai, Krahn, Krou/Sapo, Gola, Bassa, Mano, Lorma); many groups in Gabon (Okande-Tsogho, Kota-Kele, Nzabi-Duma, Mbede-Teke, Shira-Punu/Vili, Fang); several groups in Tanzania (Pare, Ngoni, Iramba, Pogoro, Ndengereko); several groups in South Africa (Tsonga, Venda, Swazi), as well as in nearby Zimbabwe (Ndebele), Namibia (Caprivi/Lozi) and Southern Zambia (Mbunda, Bisa, Tonga); several groups in Cameroon (Boulou-Fang, other Adamaoua, Wimbum-Yamba, Bamoun, Gbaya); and small groups in southern Senegal (Diola, Manjaak/Mancagne/Balant). The average prevalence of premarital fertility for these groups was 43 percent, which is well above what was expected (30 percent) based on age at first marriage and age at first intercourse.

4 Conclusions

This study of the prevalence of premarital fertility by ethnicity shows wide variation throughout sub-Saharan Africa. A woman giving birth before marriage ranges from being a rare event to being almost universal. Such a broad range of behavior is unusual when compared with other demographic and social indicators. While problems of definition and sample size must be taken into consideration, the overall diversity of the results of this study are apparent from the data, and matches the diversity of behavior documented in the ethnographic literature. DHS surveys facilitate this kind of comparative analysis because they utilize consistent questions on age at first marriage, age at first intercourse, and age at first birth.

The prevalence of premarital fertility has a structural component; it is bounded by the window of opportunity (for a birth to occur) between a woman's first intercourse and her first marriage, assuming nonuse of contraception during this period. In the study, the correlation between age at marriage and premarital fertility was strong. Age at marriage, which varied widely among groups, was found to be the most important factor in premarital fertility. Age at first intercourse had varied less and had less impact on premarital fertility. However, age at first marriage and age at first intercourse do not explain everything. The study found that while attitudes and behaviors have considerable influence, contraceptive use has little impact. A number of ethnic groups were found to be particularly repressive in terms of premarital intercourse whereas others were generally permissive. These behaviors are ethnicity-specific even though other factors such as religion have an impact.

Cultural change in the twentieth century has influenced patterns of premarital fertility in Africa. First, the spread of monotheistic religions has had a strong negative effect on premarital fertility. At the same time, increases in modern education and wage-based income have had a positive effect, with women delaying childbirth until after marriage. These contrasting forces explain to a large extent the higher levels of premarital fertility found in urban areas and in wealthier countries. The balance between positive and negative effects may explain the intermediate situation in some countries, while other countries have been more influenced by one set of factors than another. Here again, the variation within and between groups is substantial in sub-Saharan Africa, and modernization has further complicated an already diverse situation.

This overview has several limitations. Above all, we regret the lack of details on ethnicity and its coding in many countries. However, now that a list of ethnic groups is available with standardized coding, we encourage the use of the list in demographic surveys. This will allow further analysis and, in some instances, the grouping of cases by language family or geographical proximity. Such activities promoting standardization would improve the quality of analyses. Some countries have chosen to ignore ethnicity in their demographic surveys for political reasons. However, failing to record this important information, which is needed for adequate program planning at national and regional levels, misses a valuable opportunity for analysis and deeper understanding of African societies.

Ethnicity has long been neglected in demographic research, partly because of its complexity and its lack of standardization, but also because of lack of interest among those studying basic topics such as fertility and mortality. However, for topics such as nuptiality and migration, or the spread of HIV/AIDS, ethnicity may be one of the key factors in differentials by country or region. This study has shown the important effect of ethnicity on premarital fertility. The correlation of data on premarital fertility in sub-Saharan Africa by ethnic group has yielded new information that could not have been obtained using standard socioeconomic determinants alone.

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Appendix

Premarital Fertility and Ethnicity

in Africa:

Country Analysis

Overview of the Country Analysis

This section presents estimates of premarital fertility by ethnicity for 25 countries in sub-Saharan Africa. A description of the methodology is presented in the main part of this report. The Appendix is organized by country with the data presented in the same format for each country: description of the available surveys, distribution of selected ethnic groups, and estimates of premarital fertility and its main correlates (median age at first marriage, percentage living in urban areas, and percentage that had sexual intercourse before marriage).

A figure for each country illustrates the relationship between age at first marriage and premarital fertility, which is defined as the proportion of women who gave birth before marriage. Usually, the relationship is linear; that is, premarital fertility increases as age at marriage increases. However, in some countries the relationship is either absent (homogeneous countries) or complex (curvilinear relationship). A straight line is shown in each figure to guide the reader.

The country analyses presented here are limited in scope. The aim was to explain how ethnic groups were selected for analysis and to describe the main relationships between premarital fertility, age at first marriage, and ethnicity, at the national level. All estimates were calculated using weighted samples (V005 in DHS files).

Definitions

Definitions for the indicators presented in Table 3 for each country are the following:

Percent urban is the proportion of interviewed women living in urban areas. For some ethnic groups the percentage urban may differ from that cited in the national census. Because of the cluster sampling method used in DHS surveys, some clusters for selected ethnic groups can end up primarily in urban or rural areas.

Median age at first marriage was obtained by selecting women age 25 and over and calculating for each cohort the age at which 50 percent of the women were ever married. This definition is different from life table estimates for median age at marriage.

Percent never married is the proportion of women age 40-49 at the time of the survey who were never married.

Percent premarital births is the proportion of births that occurred prior to the woman's first marriage, dates being counted by month and year.

Percent women with premarital birth is the proportion of women who had at least one premarital birth, among those who are either ever married or ever fertile. Never-married women who never had a live birth are excluded.

Percent premarital intercourse is the proportion of women who had sexual intercourse prior to their first marriage, among those who ever had intercourse.

BENIN

Benin conducted one WFS survey in 1982 and two DHS surveys, in 1996 and 2001. The WFS survey code book did not provide the codes for ethnicity (V707), and it was not possible to recover the labels from the "language spoken at home" variable (S727), except for a few obvious cases. It was decided that only the data from the two DHS surveys would be used. The 1982 WFS survey included the 42 official ethnic groups of Benin. The DHS surveys included only the eight main linguistic groups. These groups appear to have remained stable over the years and were also used in the census.

Table 1 Sample size and main characteristics of surveys, Benin

Benin	WFS 1982	DHS 1996	DHS 2001
No. of women interviewed	4,018	5,491	6,219
No. of ethnic categories, local	42		
No. of families of ethnic groups		8	8
No. of ethnic categories, foreign	1	1	1
Percent other and unknown	6.7	4.8	4.6

The two DHS surveys were compatible, with coding of the ethnicity variable (V131) basically the same in both surveys (Table 2). There were, however, some minor differences, the most important being the higher proportion of Fon, the largest ethnic group in the country, in the second DHS survey, and a corresponding gap among the Bariba, Yoa and Lopka, Betamaribe, and Peulh. This pattern is related to the higher number of women who answered the questionnaire in Fon in the second survey (49.7 percent), compared with 1996 (35.3 percent) and 1982 (28.9 percent).

Table 2 Distribution of ethnic groups by survey, Benin

Ethnic group	Census 1992	DHS 1996	DHS 2001	Difference between the two DHS surveys: P-value	Difference between the two DHS surveys: Significance
Adja	15.6	14.6	15.1	0.438	
Bariba	8.6	9.5	8.2	0.014	*
Dendi	2.8	2.5	2.7	0.548	
Fon	42.2	39.9	45.0	0.000	*
Yoa and Lokpa	3.8	5.7	3.7	0.000	*
Betamaribe	6.1	6.4	5.1	0.004	*
Peulh	6.1	6.0	3.8	0.000	*
Yoruba	12.1	10.7	11.9	0.042	*
Other and unknown	2.7	4.8	4.6	0.642	
Total	100.0	100.0	100.0	7.37E-48	*

*p <0.05

It was decided that this minor difference between the two surveys would not seriously bias the estimates. In fact, it probably functioned to minimize differences between the Fon and the other groups because, increasingly, people in the other groups tended to assimilate themselves into the dominant group. In addition, the distribution of the population in the second DHS survey was similar to that of the 1992 census, with some minor differences. The 1996 and 2001 DHS surveys were therefore combined for the final estimates.

Premarital Fertility

Premarital fertility is low in Benin compared with other African countries. The proportion of women with a premarital birth ranges from 4.9 percent among the Peulh to 13.6 percent among the Yoruba. The Yoruba are among the more urbanized groups and have a somewhat higher age at first marriage, whereas the Peulh are the least urbanized group and have a lower than average age at marriage. Overall, premarital fertility is low given the relatively high prevalence of premarital intercourse (55.0 percent).

Table 3 Premarital fertility and nuptiality indicators, Benin

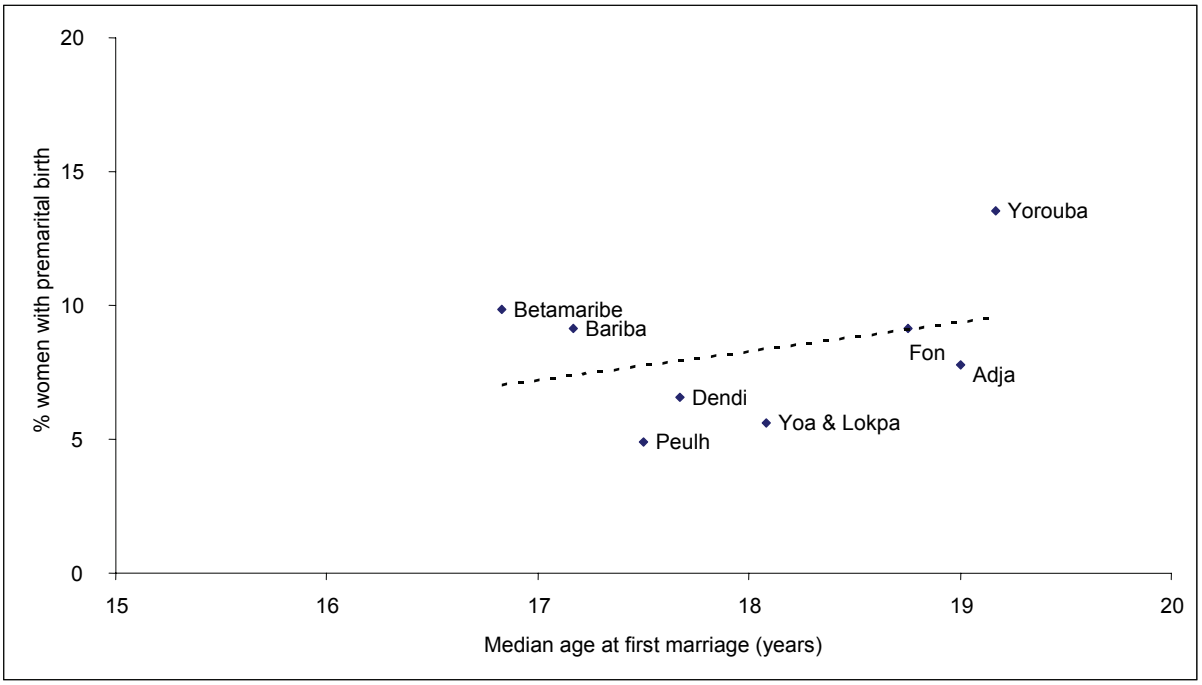
Ethnic group	Number of women surveyed	Percent urban	Median age at first marriage (years)	Percent age 40-49 never married	Percent premarital births	Percent women with premarital birth	Percent premarital intercourse
Adja	1,941	36.6	19.0	0.0	2.8	7.8	44.2
Bariba	1,037	39.0	17.2	0.0	3.0	9.1	36.5
Dendi	292	64.8	17.7	0.0	2.2	6.5	35.9
Fon	4,761	40.5	18.8	0.7	3.4	9.2	58.2
Yoa and Lokpa	590	30.2	18.1	0.8	1.6	5.6	31.9
Betamaribe	751	28.1	16.8	1.7	4.3	9.8	37.2
Peulh	589	14.9	17.5	0.0	1.8	4.9	20.1
Yoruba	1,211	52.7	19.2	2.0	5.2	13.6	55.9
Other and unknown	538	58.1	19.0	1.4	5.2	12.2	54.8
Total	11,710	40.2	18.5	0.7	3.4	9.1	55.0

Source: Authors' calculations after merging data from 1996 and 2001 DHS surveys.

Correlation with age at marriage was low (ρ = 0.35). Figure 1 shows three groups: a group in the middle with expected values of medium age at marriage and low premarital fertility (Peulh, Dendi, Yoa and Lokpa); a group with low age at marriage and higher premarital fertility (Bariba, Betamaribe); and a group with higher age at marriage and higher premarital fertility (Yoruba, Fon, Adja).

The correlation with urban residence was more straightforward, although it remained moderate (ρ = 0.40). The more urbanized groups also had higher premarital fertility. The only exception was the Dendi, who had lower than average premarital fertility despite the highest proportion of urban residence.

Figure 1 Correlation between premarital fertility and age at first marriage, Benin



BURKINA FASO

Burkina Faso conducted three DHS surveys, in 1993, 1996, and 2003. The second DHS survey included more ethnic groups (Bissa, Dafing, Dagara, Samo) than the first, although these disappeared in the last survey, with the exception of the Bissa. There are about 50 ethnolinguistic groups reported in Burkina Faso. Grouping them into 10 categories is a simplification, however the largest groups are well defined in the DHS surveys.

Table 1 Sample size and main characteristics of DHS surveys, Burkina Faso

Burkina Faso	DHS 1993	DHS 1996	DHS 2003
No. of women interviewed	6,354	5,445	12,477
No. of ethnic categories, local	9	13	10
No. of ethnic categories, foreign	1	6	1
Percent other and unknown	7.2	12.2	8.7

Overall, the three DHS surveys were compatible with respect to ethnic distribution (Table 2), however there were several notable differences. The Dioula group almost disappeared in 1996 (0.5 percent compared with 7.5 percent in 1993) then reappeared in the last survey (5.7 percent in 2003). According to census sources, however, Dioula speakers are assumed to make up about 9.3 percent of the population.

Table 2 Distribution of ethnic groups by survey, Burkina Faso

				Difference between the first two DHS surveys	
Ethnic group	DHS 1993	DHS 1996	DHS 2003	P-value	Signifi-cance
Bobo	6.9	4.7	2.5	0.245	
Dioula	7.5	0.5	5.7	0.001	*
Fulfude (Peulh)	5.3	6.5	6.3	0.561	
Gourmantche	4.2	8.2	6.9	0.056	
Gourounsi	5.8	5.3	3.4	0.796	
Lobi	4.4	1.3	5.2	0.016	*
Mossi	56.1	58.8	56.5	0.519	
Senoufo	1.1	2.3	3.8	0.313	
Touareg	1.5	0.4	1.1	0.150	
Other and unknown	7.2	12.2	8.7	0.054	
Total	100.0	100.0	100.0	<E-99	*

*p <0.05

The questions about ethnicity were the same in the three DHS surveys (Q117, Q119, and Q118 respectively: *Quelle est votre ethnie*?). There was no evidence of a major bias in the sampling in 1999, and the provinces where Dioula are normally counted (Houet, Kadiago, Kenedougou, Kossi, Mouhoun, Sourou) were well represented in 1999, although somewhat less so than in 1993. Some of the Dioula could have been counted among the new categories in 1999, but these were not in the same provinces. It seems more likely that there was some confusion in 1999 between ethnic category, language of the interview, and language spoken at home, or some other unknown factor. Other smaller biases were identified in 1999; more people were counted as Gourmantche and fewer as Lobi. Other differences could be attributed to sample biases.

Despite these small discrepancies, the three surveys were merged for the final analysis. It is likely that the Dioula category is underestimated. This might reduce the specificity of some of the other groups because some of the Dioula were probably merged with them.

Premarital Fertility

Premarital fertility in Burkina Faso is low compared with other African countries and marriage is virtually universal for women. The proportion of women with a premarital birth ranges from 2.6 percent among the Touareg to 12.4 percent among the Senoufo.

Table 3 Premarital fertility and nuptiality indicators, Burkina Faso

Ethnic group	Number of women surveyed	Percent urban	Median age at first marriage (years)	Percent age 40-49 never married	Percent premarital births	Percent women with premarital birth	Percent premarital inter-course
Bobo	1,155	28.8	17.2	0.3	3.1	10.0	32.4
Dioula	1,310	32.1	17.3	0.0	3.0	9.4	29.9
Fulfulde (Peulh)	1,392	9.8	15.8	0.0	2.1	5.6	13.3
Gourmantche	1,373	3.0	17.0	0.0	3.2	8.0	7.7
Gourounsi	1,262	22.4	17.8	0.8	3.3	9.3	27.0
Lobi	1,435	14.3	17.2	0.3	3.3	10.5	21.0
Mossi	14,048	21.5	17.7	0.1	2.5	7.4	29.1
Senoufo	922	28.8	16.8	0.0	4.3	12.4	34.3
Touareg	243	3.4	15.1	0.0	1.1	2.6	5.5
Bissa	758	17.1	17.8	0.0	2.9	8.3	20.0
Other and unknown	1,378	22.9	17.4	0.0	3.9	10.6	30.8
Total	25,276	20.1	17.4	0.1	2.8	8.1	26.1

Source: Authors' calculations after merging data from 1993, 1999, and 2003 DHS surveys.

The main difference by ethnicity was between the pastoral groups (Fulfulde, Touareg) with low age at marriage, low urban residence, and low levels of premarital fertility, and the more urbanized groups (Dioula, Bobo, Senoufo) for whom the average age at first marriage is about 17 years. The Gourmantche and the Lobi had higher levels of premarital fertility than would be expected by their level of urban residence or age at marriage, whereas the Mossi and Gourounsi were well below the regression lines linking premarital fertility to urban residence or age at marriage.

The correlation with urban residence was low (r = 0.26), as it is for the country in general. The correlation with age at first marriage was much higher (0.71), pointing up the gap of almost three years in median age at marriage between the Touareg and the Bissa (Figure 1). Differences in age at marriage are a major factor in the varying levels of premarital fertility in Burkina Faso. The main division is between the northern pastoral groups (Touareg, Peulh), which have very low age at first marriage, and all the other groups.

Figure 1 Correlation between premarital fertility and age at first marriage, Burkina Faso

CAMEROON

Cameroon conducted one WFS survey in 1978 and three DHS surveys, in 1991, 1998, and 2004. Coding of ethnicity was very different in 1978 and not compatible with that of later DHS surveys. Ethnicity was not available in 1991. Coding of ethnicity was identical in the 1998 and 2004 surveys, therefore these two were combined for analysis.

Table 1 Sample size and main characteristics of surveys, Cameroon

Cameroon	WFS 1978	DHS 1991	DHS 1998	DHS 2004
No. of women interviewed	8,219	3,871	5,501	10,656
No. of ethnic categories, local	33	0	46	46
No. of ethnic categories, foreign	1	1	1	1
Percent other and unknown	4.8	0.2	1.4	3.9

The 1998 and 2004 DHS surveys were largely compatible (Table 2). With the exception of the Bamileke, frequencies for ethnic groups were not significantly different in the two surveys. Because of the large number of ethnic groups in Cameroon—some 240 have been reported in the ethnographic literature—and the small sample size of some groups, only larger groups with at least 250 women were retained and merged according to regional residence. This resulted in 24 groups: 19 were well defined ethnically, 4 were regional groupings, and one comprised the category "other and unknown." Because of the large sample size of the second survey and the merging of the two surveys, the differences in demographic behavior between groups were marked and most were significant.

Table 2 Distribution of ethnic groups by survey, Cameroon

				Difference between the two DHS surveys	
V131	Ethnic group	DHS 1998	DHS 2004	P-value	Signifi-cance
1	Arabe Choa	0.9	0.9	0.965	
2	Peulh	4.5	5.6	0.479	
3	Haoussa	0.6	0.8	0.944	
4	Kanuri	0.3	1.0	0.690	
5	Bata	1.3	0.2	0.480	
6	Daba	0.1	0.7	0.678	
7	Guidar	1.2	1.3	0.919	
8	Kotoko	0.7	0.8	0.955	
9	Kwang/Kera	0.0	0.0	0.990	
10	Mafa	6.6	3.9	0.104	
11	Margui	1.0	0.3	0.657	
12	Massa	1.8	1.7	0.949	
14	Mousgoum	1.1	0.1	0.551	
15	Sara	0.9	0.6	0.872	
16	Wandala/Mandara	0.8	1.3	0.776	
17	Dourou	1.2	0.3	0.579	
18	Fali	2.6	1.2	0.400	
19	Gbaya	1.3	1.6	0.818	
21	Mambila	0.4	1.1	0.662	
22	Mboum	3.4	6.5	0.060	
23	Samba	0.1	0.2	0.948	
24	Banyang	1.2	0.8	0.820	
25	Bendi	0.1	0.1	0.997	
26	Efik-Korop	0.2	0.1	0.951	
27	Ejagham	0.1	0.2	0.960	
28	Mbembe	0.0	0.8	0.648	
29	Tiv	0.0	1.3	0.431	

Continued...

Table 2—*Continued*

V131	Ethnic group	DHS 1998	DHS 2004	Difference between the two DHS surveys: P-value	Significance
30	Bebe	0.8	0.4	0.855	
31	Menchum	0.6	0.3	0.828	
32	Momo	3.0	2.0	0.542	
33	Ngemba	3.4	3.1	0.840	
34	Ring	4.3	3.4	0.572	
35	Wimbum-Yamba	1.8	1.6	0.894	
36	Bamoun	4.3	3.7	0.730	
37	Bamilike-Central	15.4	21.0	0.000	*
38	Cotier	2.1	1.3	0.590	
39	Ngoe-Oroko	2.2	3.0	0.586	
40	Bafia	0.6	1.1	0.751	
41	Banen-Bandem	0.9	0.3	0.745	
42	Yambassa	1.4	1.1	0.828	
43	Bassa-Bakoko	4.7	4.8	0.962	
44	Beti	12.0	9.4	0.101	
45	Boulou-Fang	3.0	3.6	0.744	
46	Kako	1.1	0.8	0.834	
47	Meka	4.3	1.8	0.122	
48	Pygmee	0.5	0.1	0.809	
	Other and unknown	1.4	3.9	0.618	
	Total	100.0	100.0		

*p <0.05

The variation in demographic behavior by ethnicity is marked (Table 3). Age at first marriage ranged from 14.7 to 20.8 years; the proportion of women who had premarital intercourse was 4.8 to 79.2 percent; the proportion of premarital births was 0.2 to 26.2 percent; and the proportion of women with a premarital birth was 1.0 to 49.1 percent. The diversity of behaviors associated with premarital fertility in Cameroon is almost as great as that of the entire African continent.

Table 3 Premarital fertility and nuptiality indicators, Cameroon

Ethnic group	Number of women surveyed	Percent urban	Median age at first marriage (years)	Percent age 40-49 never married	Percent premarital births	Percent women with premarital birth	Percent premarital inter-course
Peulh	835	48.6	14.8	0.0	1.6	5.0	10.4
Guidar	201	29.9	15.4	0.0	1.1	3.2	10.6
Mafa	605	21.1	15.3	0.0	1.7	4.6	10.2
Massa	215	29.9	15.1	0.0	0.9	2.5	11.0
Other Northern	920	31.7	15.0	0.0	1.2	3.5	7.4
Fali	233	15.1	14.7	0.0	0.2	1.0	4.8
Gbaya	344	35.9	16.1	0.0	6.8	16.0	41.9
Mboum	741	24.0	15.6	0.0	1.3	3.6	13.0
Other Adamaoua	257	40.2	15.6	0.0	8.0	13.3	32.8
Momo	332	36.5	18.2	0.0	10.7	27.6	61.7
Ngemba	484	38.9	19.3	4.0	12.3	25.4	69.3
Ring	511	39.7	19.3	8.8	15.4	32.6	64.5
Wimbum/Yamba	244	30.9	18.3	15.8	15.5	30.2	59.1
Other Western	516	46.5	17.9	0.0	13.6	29.1	61.9
Bamoun	599	53.7	16.6	0.0	5.6	15.1	36.4
Bamilike	3,275	75.4	18.8	1.3	7.0	16.4	58.4

Continued…

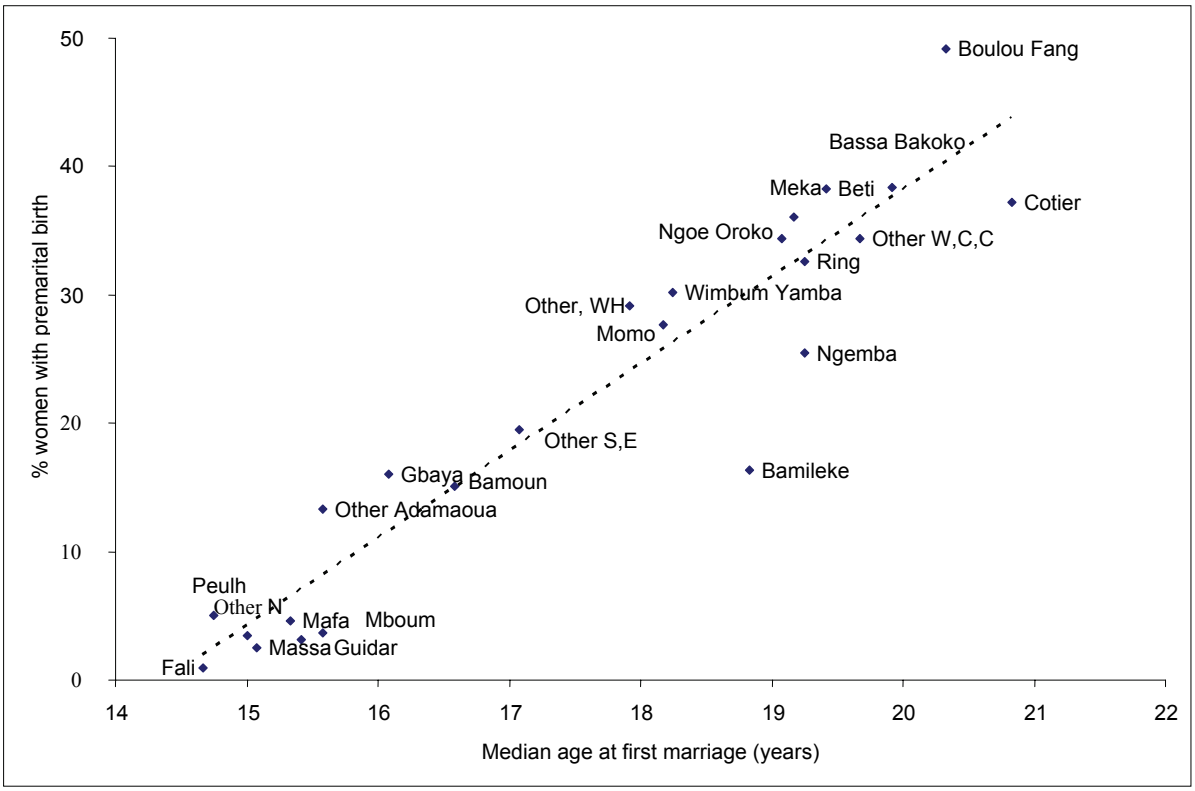
Table 3—*Continued*

Ethnic group	Number of women surveyed	Percent urban	Median age at first marriage (years)	Percent age 40-49 never married	Percent premarital births	Percent women with premarital birth	Percent premarital inter-course
Cotier/Douala	284	73.1	20.8	2.9	19.8	37.2	76.9
Ngoe-Oroko	491	40.7	19.1	3.5	17.4	34.4	68.0
Bassa-Bakoko	899	67.8	19.9	1.4	18.7	38.4	75.2
Beti	1,784	51.0	19.4	2.1	18.7	38.2	74.3
Other Central Coast	466	58.3	19.7	7.4	17.7	34.4	67.4
Boulou/Fang	733	44.3	20.3	0.0	26.2	49.1	79.2
Meka	484	30.0	19.2	0.0	16.2	36.1	74.5
Other South, East	219	24.6	17.1	0.0	8.6	19.5	59.3
Other and unknown	485	52.7	16.5	0.0	5.6	14.8	39.0
Total	16,157	48.1	17.8	1.4	8.9	20.4	48.3

Source: Authors' calculations after merging data from 1998 and 2004 DHS surveys.

Correlations of the prevalence of premarital fertility with age at marriage (p = 0.942) and premarital sex (p = 0.955) were high, and the distribution of ethnic groups according to median age at marriage was basically linear (Figure 1). Correlation with urban residence was much lower (ρ = 0.488), and most of the differences could be attributed to differences in cultural patterns.

Figure 1 Correlation between premarital fertility and age at first marriage, Cameroon



CENTRAL AFRICAN REPUBLIC

The Central African Republic (CAR) conducted only one DHS survey, in 1994. Ethnicity was defined as the main language spoken at home (V131). The DHS survey coded nine ethnolinguistic group categories of African origin.

Table 1 Sample size and main characteristics of DHS surveys, CAR

CAR	DHS 1994
No. of women interviewed	5,884
No. of ethnic categories, African	9
Percent other and unknown	2.1

The distribution of ethnic groups is marked by two dominant groups (Gbaya, Banda) who account for more than half of the population, plus several groups common to Cameroon (Table 2).

Table 2 Distribution of ethnic groups in survey, CAR

Origin	Ethnolinguistic group	DHS 1994
African	Hausa/Haoussa	4.9
	Sara	6.1
	Mboum	6.9
	Gbaya	28.4
	Mandjia	8.7
	Banda	27.4
	Ngbaka-Bantou	6.6
	Yakoma-Sango	5.7
	Zande-Nzakara	3.2
Other	Other and unknown	2.1
Total		100.0

Premarital Fertility by Ethnicity

CAR has a medium age at first marriage (17.2 years), a low proportion of women who never marry (1.8 percent), and a moderate level of premarital fertility (5.9 percent for all births, 11.1 percent for women). Differentials in premarital fertility by ethnicity vary from 3.4 to 8.0 percent for all births, and from 6.6 to 16.8 percent for women.

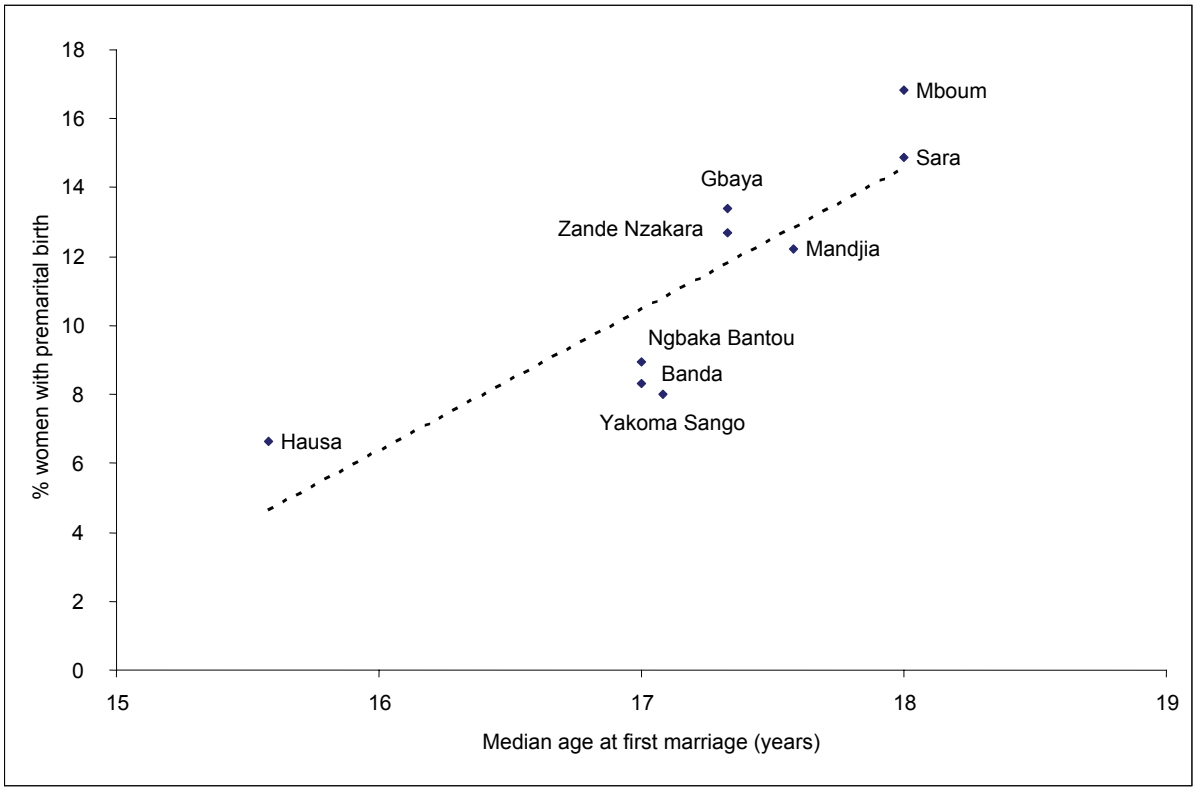
Correlation was negative with urban residence (-0.815), but positive with age at first marriage (+0.847). As in Cameroon, the relationship between age at marriage and the proportion of women with a premarital birth was straightforward, with the exception of the Hausa (Figure 1). However, premarital fertility and age at marriage were higher for the Mboum and Gbaya in CAR compared with their counterparts in Cameroon.

Table 3 Premarital fertility and nuptiality indicators, CAR

Ethnolinguistic group	Number of women surveyed	Percent urban	Median age at first marriage (years)	Percent age 40-49 never married	Percent premarital births	Percent women with premarital birth	Percent premarital intercourse
Hausa	290	60.1	15.6	0.0	3.4	6.6	26.8
Sara	361	40.5	18.0	4.4	7.7	14.9	47.8
Mboum	405	27.7	18.0	0.0	7.9	16.8	51.7
Gbaya	1,673	35.5	17.3	3.1	7.2	13.4	53.7
Mandjia	513	49.5	17.6	1.0	6.9	12.2	49.1
Banda	1,610	40.8	17.0	1.5	4.1	8.3	44.6
Ngbaka-Bantou	389	50.8	17.0	0.0	4.1	8.9	47.3
Yakoma-Sango	335	64.3	17.1	0.0	4.4	8.0	42.0
Zande-Nzakara	191	44.0	17.3	6.4	8.0	12.7	47.3
Other and unknown	117	57.6	17.5	0.0	3.5	4.7	34.1
Total	5,884	42.6	17.2	1.8	5.9	11.1	47.5

Source: Authors' calculations from 1994 DHS survey.

Figure 1 Correlation between premarital fertility and age at first marriage, Central African Republic



CHAD

Chad conducted only one DHS survey, in 1997. Ethnicity was defined as the main language spoken at home (V131). The DHS survey coded 12 ethnolinguistic group categories of African origin.

Table 1 Sample size and main characteristics of DHS survey, Chad

Chad	DHS 1997
No. of women interviewed	7,454
No. of ethnic categories, African	12
Percent other and unknown	2.1

All groups were kept for final analysis, after grouping "other and unknown" (Table 2).

Table 2 Distribution of ethnic groups in DHS survey, Chad

Origin	Ethnolinguistic group	DHS 1997
African	Gorane	5.2
	Arab	10.4
	Ouaddai	12.1
	Baguirmien	1.5
	Kanem-Bornou	9.5
	Fitri-Batha	6.0
	Hadjarai	5.4
	Lac Iro	1.0
	Sara	29.1
	Tandjile	6.0
	Peulh	1.9
	Kebbi	9.7
Others	Other and unknown	2.1
	Total	100.0

Premarital Fertility by Ethnicity

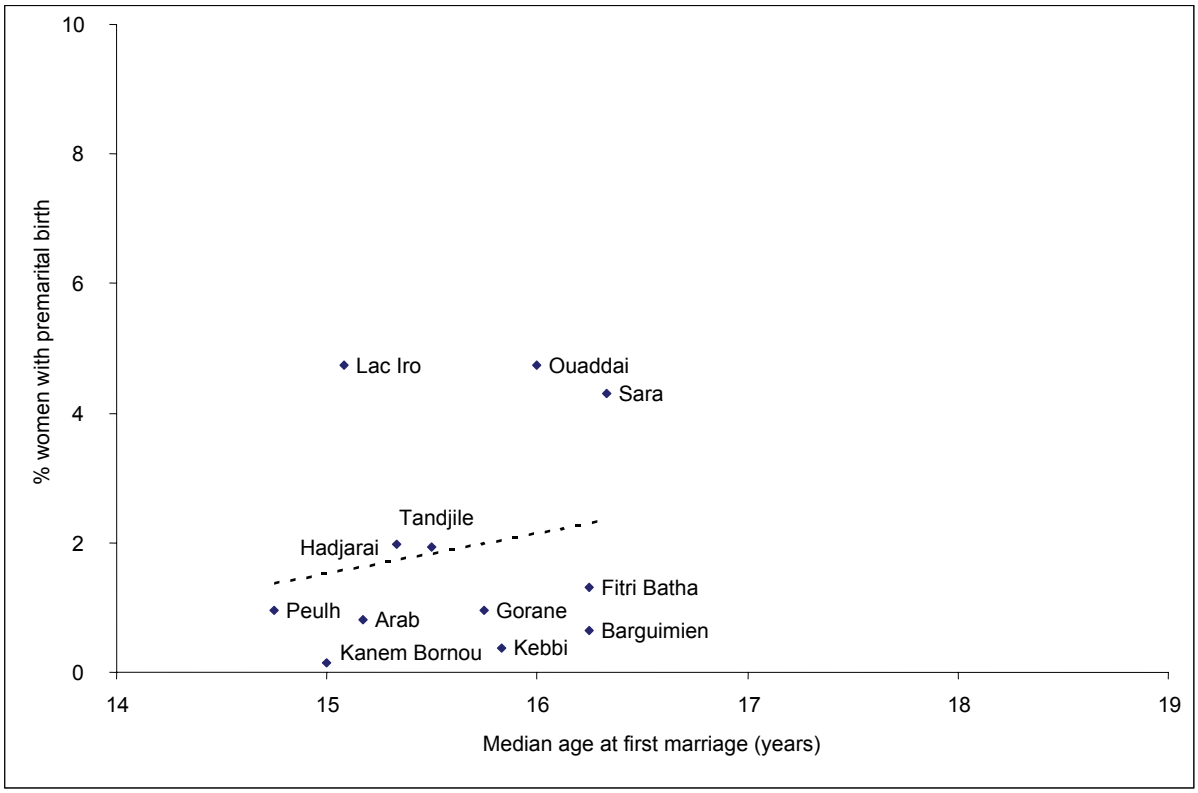
Chad is a relatively homogenous country with a low age at first marriage (15.8 years), a low proportion of women who never marry (<0.1 percent), and a low level of premarital fertility (0.8 percent for all births, 2.4 percent for women). Differentials in premarital fertility by ethnicity do not vary much (from 0.1 to 1.7 percent for all births, and from 0.2 to 4.7 percent for women). The prevalence of premarital intercourse was somewhat higher (17.2 percent), though still low by African standards. Correlation of premarital fertility with age at first marriage was low (ρ = +0.197), and correlation with urban residence was negative (ρ = -0.431).

Table 3 Premarital fertility and nuptiality indicators, Chad

Ethnolinguistic group	Number of women surveyed	Percent urban	Median age at first marriage (years)	Percent age 40-49 never married	Percent premarital births	Percent women with premarital birth	Percent premarital intercourse
Gorane	453	41.4	15.8	0.0	0.3	0.9	12.7
Arab	831	29.6	15.2	0.0	0.4	0.8	12.6
Ouaddai	819	14.2	16.0	0.0	1.6	4.7	18.9
Baguirmien	131	37.0	16.3	0.0	0.2	0.6	17.4
Kanem-Bornou	698	20.4	15.0	0.0	0.1	0.2	6.7
Fitri-Batha	455	22.7	16.3	0.0	0.6	1.3	15.3
Hadjarai	433	29.3	15.3	0.0	0.5	2.0	19.0
Lac Iro	66	11.4	15.1	0.0	1.7	4.7	42.1
Sara	2,180	24.1	16.3	0.0	1.3	4.3	24.2
Tandjile	416	16.4	15.5	0.0	0.5	1.9	18.5
Peulh	142	25.1	14.8	0.0	0.2	1.0	12.5
Kebbi	641	11.7	15.8	0.0	0.1	0.4	11.4
Other and unknown	189	43.9	15.2	2.7	0.9	2.0	14.1
Total	7,454	23.1	15.8	0.1	0.8	2.4	17.2

Source: Authors' calculations from 1997 DHS survey.

Figure 1 Correlation between premarital fertility and age at first marriage, Chad



CÔTE D'IVOIRE

Côte d'Ivoire conducted a WFS survey in 1980 and two DHS surveys in 1994 and 1999 (Table 1). The WFS survey included 16 ethnic groups and five larger language families. The 1994 DHS survey included 50 detailed ethnic groups plus many categories for foreigners by country of origin. Unfortunately, labels for these 50 detailed ethnic groups were not provided in the codebook, rendering them unusable. The 1999 survey, which was based on a small sample, provided only the five larger language families, which, fortunately, happened to be the same as in the 1980 survey. We therefore combined the 1980 and the 1999 surveys for final analysis. Côte d'Ivoire being a country of in-migration, the proportion of foreigners was high.

Table 1 Sample size and main characteristics of surveys, Côte d'Ivoire

Côte d'Ivoire	WFS 1980	DHS 1994	DHS 1999
No. of women interviewed	5,764	8,099	3,040
No. of ethnic categories, local	16	50	--
No. of ethnic categories, foreign	1	13	1
Large ethnolinguistic families	5	--	5
Percent foreigner	24.4	22.2	22.2
Percent other and unknown	0.3	0.2	0

Differences in the distribution of large ethnolinguistic families between the two surveys were minor, though three of them were statistically significant (Table 2). However, these minor differences could not impact the final estimates based on the combined data sets.

Table 2 Distribution of ethnic groups by survey, Côte d'Ivoire

Ethnic group	WFS 1980	DHS 1999	Difference between the two surveys: P-value	Difference between the two surveys: Significance
Akan	29.1	29.8	0.495	
Krou	13.3	11.0	0.002	*
Mande North	12.0	12.1	0.932	
Mande South	9.7	10.3	0.395	
Voltaic	11.1	14.6	0.000	*
Other and unknown	24.8	22.2	0.008	*
Total	100.0	100.0		

*p <0.05

Premarital Fertility by Ethnicity

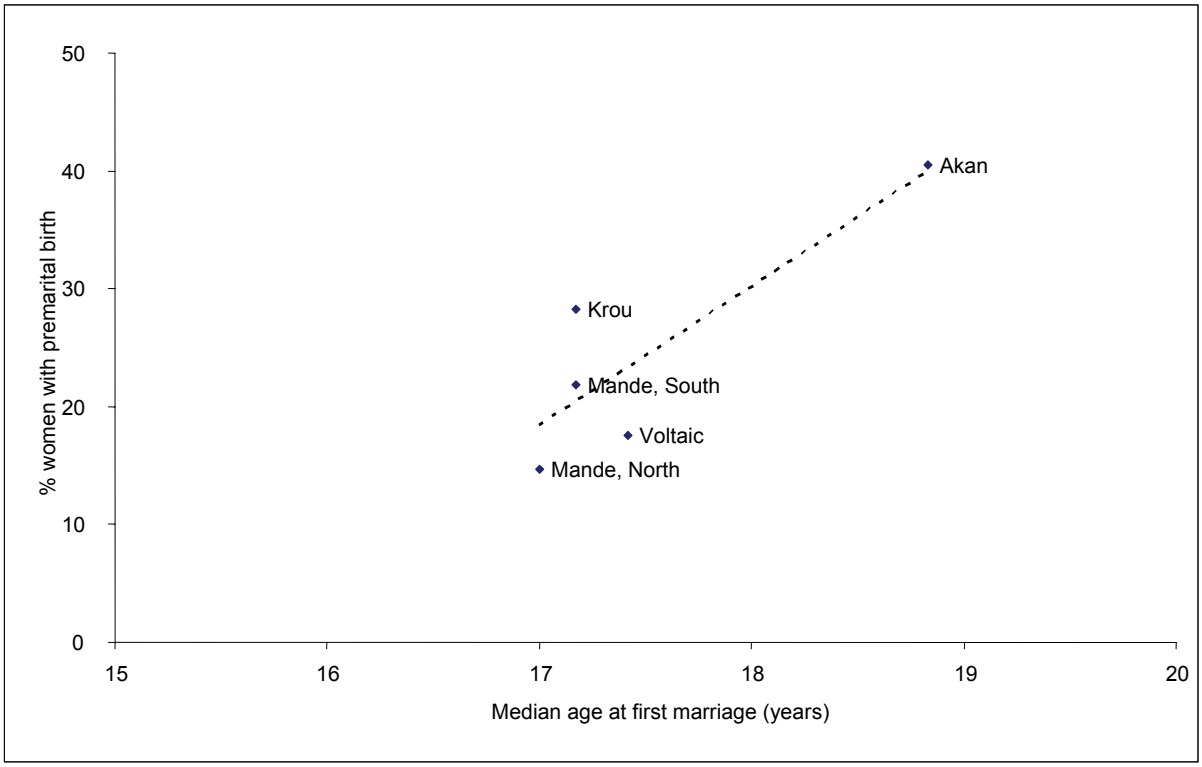
In Côte d'Ivoire, the level of urban residence is average, and age at marriage is medium, around 17.7 years. However, premarital fertility varies markedly, between 5.0 and 18.7 percent for all births and between 14.6 and 40.5 percent for women. A majority of first sexual encounters are premarital, ranging from 48.2 to 80.1 percent by ethnic group. Correlation of premarital fertility with urban residence was small (0.295), but was much higher with age at first marriage (0.856). However, most of the correlation was due to the special situation of the Akan group, which has much higher age at marriage and higher premarital fertility than the other groups (Figure 1).

Table 3 Premarital fertility and nuptiality indicators, Côte d'Ivoire

Ethnolinguistic group (large family)	Number of women surveyed	Percent urban	Median age at first marriage (years)	Percent age 40-49 never married	Percent premarital births	Percent women with premarital birth	Percent premarital intercourse
Akan	2,626	45.6	18.8	0.5	18.7	40.5	79.6
Krou	1,123	50.7	17.2	0.9	10.9	28.3	80.1
Mande North	1,095	49.5	17.0	0.0	5.0	14.6	46.9
Mande South	811	24.0	17.2	0.0	8.1	21.9	68.0
Voltaic	1,029	30.3	17.4	0.0	6.0	17.5	48.2
Other and unknown	2,120	44.5	17.3	1.0	4.9	11.8	39.1
Total	8,804	41.9	17.7	0.5	10.2	23.9	61.1

Source: Authors' calculations after merging data from 1980 and 1999 surveys.

Figure 1 Correlation between premarital fertility and age at first marriage, Côte d'Ivoire



ETHIOPIA

Ethiopia conducted a single DHS survey in 2000 (Table 1). The survey included 50 ethnic groups (V131), with virtually no unknowns, which covers a large proportion of the 79 languages ever recorded in the country. Unfortunately, the labels of the ethnic groups were not provided in the DHS codebook.

Table 1 Sample size and main characteristics of DHS survey, Ethiopia

Ethiopia	DHS 2000
No. of women interviewed	15,367
No. of ethnic categories, local	50
Language of respondent	8
Percent other and unknown	0.1

However, the language of the respondent was recorded (SRESP), and could be matched with the ethnic group variable, which allowed the identification of main ethnic groups. The final list therefore included 12 ethnic groups, which accounted for some 90 percent of the population (Table 2).

Table 2 Distribution of ethnic groups in survey, Ethiopia

Ethnic group	DHS 2000
Amara	31.8
Oromo	34.6
Tigraway	6.7
Somali	1.2
Gedeo	5.4
Afar	0.8
Anuak	0.1
Sidama	3.9
Weleyta	2.2
Hadayya	0.2
Gurage	1.8
Kafa	1.4
Other and unknown	10.0
Total	100.0

Premarital Fertility by Ethnicity

Premarital fertility is low in Ethiopia, with a prevalence of 0.9 percent for all births and 2.7 percent for women (Table 3). This is because of a variety of factors, including low median age at first marriage (16.1 years), low prevalence of premarital intercourse (10.9 percent), and low urban residence (18.2 percent).

Table 3 Premarital fertility and nuptiality indicators, Ethiopia

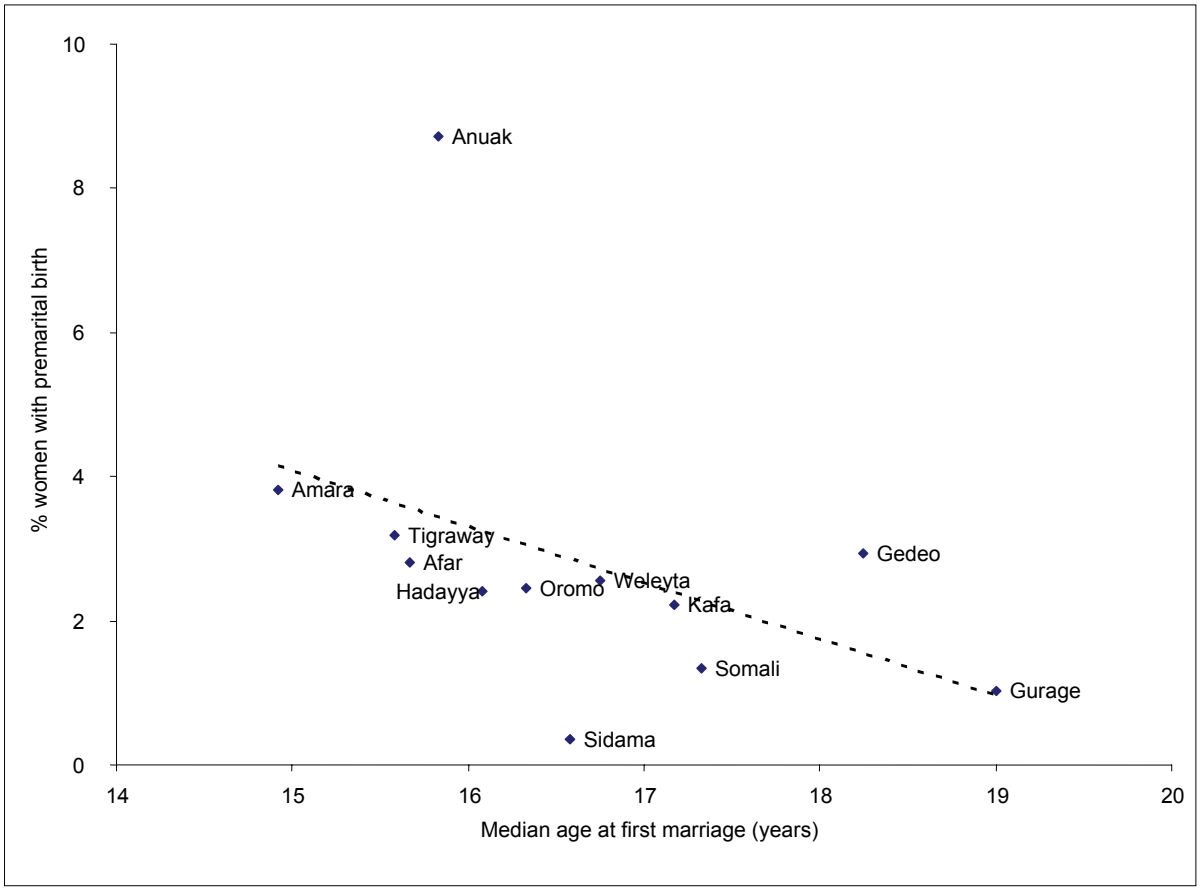
Ethnolinguistic group (large family)	Number of women surveyed	Percent urban	Median age at first marriage (years)	Percent age 40-49 never married	Percent premarital births	Percent women with premarital birth	Percent premarital intercourse
Amara	4,431	26.0	14.9	0.1	1.2	3.8	16.9
Oromo	4,161	13.3	16.3	0.4	0.9	2.4	6.3
Tigraway	1,483	29.5	15.6	1.0	1.0	3.2	20.0
Somali	785	28.9	17.3	0.0	0.5	1.3	1.6
Gedeo	862	26.1	18.3	0.2	1.1	2.9	9.3
Afar	585	6.4	15.7	0.0	1.6	2.8	2.3
Anuak	363	20.0	15.8	0.0	3.2	8.7	23.8
Sidama	355	0.7	16.6	0.0	0.1	0.3	5.3
Weleyta	230	13.4	16.8	0.0	0.8	2.6	5.9
Hadayya	211	13.8	16.1	0.0	0.8	2.4	9.6
Gurage	209	15.3	19.0	0.0	0.2	1.0	5.8
Kafa	207	7.3	17.2	0.0	0.5	2.2	13.4
Other and unknown	1,485	7.7	17.3	0.0	0.3	1.0	5.3
Total	15,367	18.2	16.1	0.2	0.9	2.7	10.9

Source: Authors' calculations from 2000 DHS survey.

Differences between ethnic groups were small given the low level of premarital fertility. In virtually all groups, premarital fertility was very low (<4 percent). The exception was the Anuak, a small group living in the marshland area of Gambela province. The province has a marginal position in the country and has recently been subject to discrimination and violence. The Anuak had somewhat higher premarital fertility despite low age at marriage (15.8 years). This is probably because of the higher prevalence of premarital intercourse (23.8 percent versus 10.9 percent for the country as a whole).

Correlation with age at first marriage was slightly negative (ρ = -0.339), which is unusual and is found in only a few countries. Correlation with urban residence was virtually nil (ρ = -0.067).

Figure 1 Correlation between premarital fertility and age at first marriage, Ethiopia



GABON

Gabon conducted only one DHS survey, in 2000. Ethnicity was defined as the main language spoken at home (V131). The DHS survey coded eight ethnolinguistic group categories of African origin. The large proportion of other and unknown is due to a large group of foreigners (17.9 percent of the sample).

Table 1 Sample size and main characteristics of DHS survey, Gabon

Gabon	DHS 2000
No. of women interviewed	6,183
No. of ethnic categories, African	8
Percent other and unknown	19.6

Although the ethnic groups were of unequal size, seven of them were large enough to be counted (Table 2). The Pygmy group was too small to be analyzed separately, and was merged with the "other and unknown" category in the final analysis.

Table 2 Distribution of ethnic groups in survey, Gabon

Origin	Ethnolinguistic group	DHS 2000
African	Fang	25.2
	Kota-Kele	6.5
	Mbede-Teke	8.3
	Myene	4.7
	Nzabi-Duma	10.6
	Okande-Tsogho	2.9
	Shira-Punu/Vili	22.2
	Pygmy	0.1
Foreign		17.9
	Other and unknown	1.7
	Total	100.0

Premarital Fertility by Ethnicity

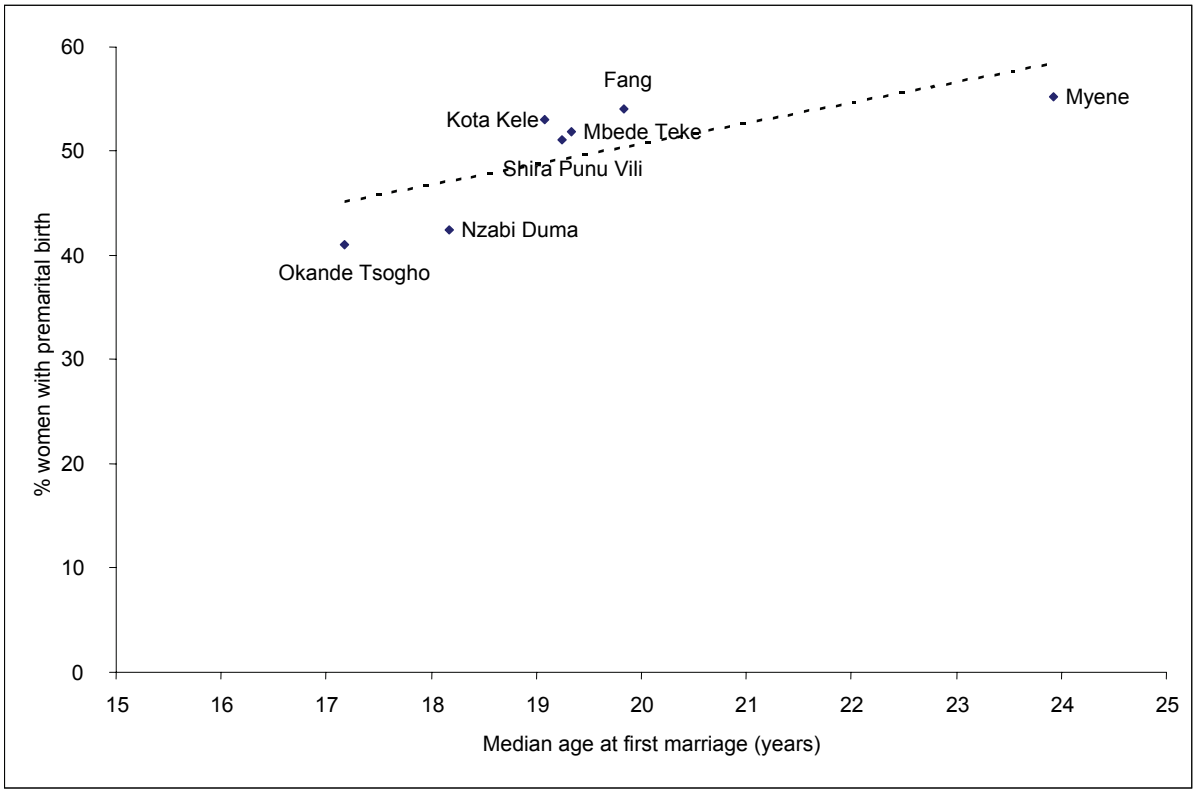
Gabon has a high level of urban residence, high age at first marriage, and high level of premarital fertility, with little variation by ethnic group. Differentials in premarital fertility by ethnicity vary from 17.6 to 37.9 percent for all births, and from 41.0 to 55.2 percent for women. Although urban residence was high for all groups, the more urbanized groups had higher premarital fertility, with a positive correlation of 0.682. Age at first marriage is universally high, with a positive correlation of 0.735. A large majority of first intercourse is premarital (74.0), with minor differences by ethnic group.

Table 3 Premarital fertility and nuptiality indicators, Gabon

Ethnolinguistic group	Number of women surveyed	Percent urban	Median age at first marriage (years)	Percent age 40-49 never married	Percent premarital births	Percent women with premarital birth	Percent premarital intercourse
Fang	1,372	82.9	19.8	3.6	31.0	54.1	78.6
Kota-Kele	491	60.3	19.1	3.9	27.6	53.0	78.9
Mbede-Teke	642	82.1	19.3	5.9	30.2	51.8	78.4
Myene	190	96.9	23.9	4.2	37.9	55.2	80.1
Nzabi-Duma	783	74.5	18.2	0.0	21.7	42.4	73.0
Okande-Tsogho	266	43.4	17.2	0.0	17.6	41.0	66.2
Shira-Punu/Vili	1,428	78.7	19.3	3.4	26.8	51.1	74.9
Other and unknown	1,011	88.6	20.3	2.7	19.6	30.3	64.2
Total	6,183	80.2	19.6	3.1	26.4	46.7	74.0

Source: Authors' calculations from 2000 DHS survey.

Figure 1 Correlation between premarital fertility and age at first marriage, Gabon



GHANA

Ghana conducted one WFS survey in 1979 and four DHS surveys, in 1988, 1993, 1999 and 2003 (Table 1). The WFS survey and the 1988 DHS survey each coded the same 7 ethnic groups; the 1993 DHS survey coded 11 groups; the 1999 DHS survey coded 12 groups, 11 of which were identical to the previous survey; and the 2003 DHS survey coded 8 groups. The proportion of "other and unknown" was lowest in 1993 and 1999, due to the more detailed categories.

Table 1 Sample size and main characteristics of surveys, Ghana

Ghana	WFS 1979	DHS 1988	DHS 1993	DHS 1999	DHS 2003
No. of women interviewed	6,125	4,488	4,562	4,843	5,691
No. of ethnic categories, African	7	7	11	11	8
Percent other and unknown	10.1	8.9	3.2	2.1	6.5

For final analysis, the 1993 and the 1999 DHS surveys were combined since they offered the greatest number of groups and the smallest number of "other and unknown." Overall, the distribution of ethnic groups was similar in the two surveys, though not identical (Table 2).

Table 2 Distribution of ethnic groups by survey, Ghana

Ethnic group	DHS 1993	DHS 1999	Difference between the two DHS surveys: P-value	Difference between the two DHS surveys: Significance
Asante	16.2	15.9	0.676	
Akwapim	3.2	4.1	0.025	*
Fante	12.1	14.1	0.004	*
Other Akan	18.1	19.5	0.083	
Ga-Adangbe	8.0	8.3	0.606	
Ewe	14.9	15.8	0.207	
Guan	2.2	1.5	0.015	*
Mole-Dagbani	15.6	6.8	0.000	*
Grussi	3.5	2.5	0.003	*
Gruma	2.3	5.4	0.000	*
Hausa/Haoussa	0.7	1.4	0.001	*
Dagarti		2.5	na	na
Other and unknown	3.2	2.1	na	na
Total	100.0	100.0	9.0E-115	*

*p <0.05
na = Not applicable

The Mole Dagbani group was lower in the second survey, partly because a new group emerged (Dagarti), with which it was probably combined in 1993. For final analysis, the Hausa group was dropped because it was too small (less than 100 women in the two surveys combined), but the Dagarti group was kept, because it was large enough, and had the lowest premarital fertility.

Premarital Fertility by Ethnicity

Premarital fertility in Ghana is low by African standards, with a prevalence of 4.0 percent for all births and 9.4 percent for women. This is despite a medium age at first marriage (18.9 years) and a high prevalence of premarital intercourse (57.4 percent) (Table 3).

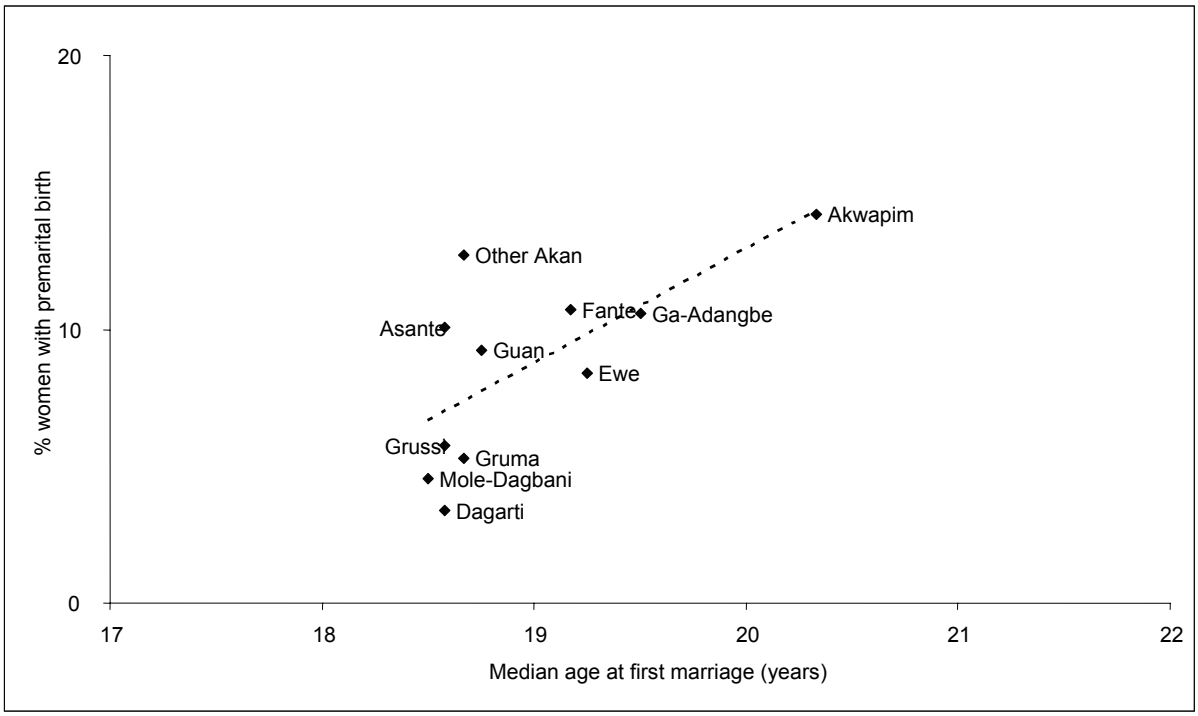
Table 3 Premarital fertility and nuptiality indicators, Ghana

Ethnolinguistic group	Number of women surveyed	Percent urban	Median age at first marriage (years)	Percent age 40-49 never married	Percent premarital births	Percent women with premarital birth	Percent premarital intercourse
Asante	1,412	39.8	18.6	0.0	4.7	10.1	60.2
Akwapim	319	46.0	20.3	0.0	6.9	14.2	66.5
Fante	1,127	48.8	19.2	0.0	4.7	10.7	61.0
Other Akan	1,650	33.7	18.7	0.8	5.7	12.7	65.5
Ga-Adangbe	708	60.5	19.5	3.6	4.9	10.6	67.0
Ewe	1,325	33.6	19.3	0.0	3.6	8.4	65.0
Guan	170	34.5	18.8	0.0	3.5	9.2	51.3
Mole-Dagbani	1,220	21.3	18.5	0.0	1.6	4.5	33.6
Grussi	363	20.9	18.6	0.0	1.9	5.7	43.4
Gruma	480	12.2	18.7	0.0	1.8	5.3	38.4
Dagarti	288	15.3	18.6	0.0	1.0	3.4	23.3
Other and unknown	343	42.5	18.6	0.0	3.1	7.4	51.8
Total	9,405	36.8	18.9	0.4	4.0	9.4	57.4

Source: Authors' calculations after merging data from 1993 and 1999 DHS surveys.

Differentials in premarital fertility by ethnicity were moderate, ranging from 3.4 percent (Dagarti) to 14.2 percent (Akwapim). Correlation with age at first marriage was high (0.669); the prevalence of premarital intercourse was high (0.911); and correlation with urban residence was high (0.795). The ethnic groups in northern Ghana (Mole-Dagbani, Grussi, Gruma, Dagarti) had lower age at marriage, lower prevalence of premarital intercourse, lower premarital fertility, and lower urban residence compared with those in the south. The Akwapim stand out with the highest level of premarital fertility and the highest age at marriage. They also have high prevalence of premarital intercourse, although they are not the most urbanized ethnic group.

Figure 1 Correlation between premarital fertility and age at first marriage, Ghana



GUINEA

Guinea conducted two DHS surveys, in 1992 and 1999. However, access to the 1992 survey was restricted. In 1999, ethnicity was defined as the main language spoken at home (V131). The DHS survey coded six ethnolinguistic group categories of African origin (Table 1).

Table 1 Sample size and main characteristics of DHS surveys, Guinea

Guinea	DHS 1992	DHS 1999
No. of women interviewed	6,065	7,143
No. of ethnic categories, African	na	6
Percent other and unknown	na	1.6

na = Not applicable

Three groups were dominant in the country: the Peulh, the Soussou and the Malinke. The other three were much smaller, although they still had enough cases of women interviewed to be analyzed separately (Table 2).

Table 2 Distribution of ethnic groups in survey, Guinea

Origin	Ethnolinguistic group	DHS 1999
African	Sousou	19.8
	Peulh	35.9
	Malinke	27.8
	Kissi	5.0
	Toma	2.6
	Guerze	7.3
Other	Other and unknown	1.6
	Total	100.0

Premarital Fertility by Ethnicity

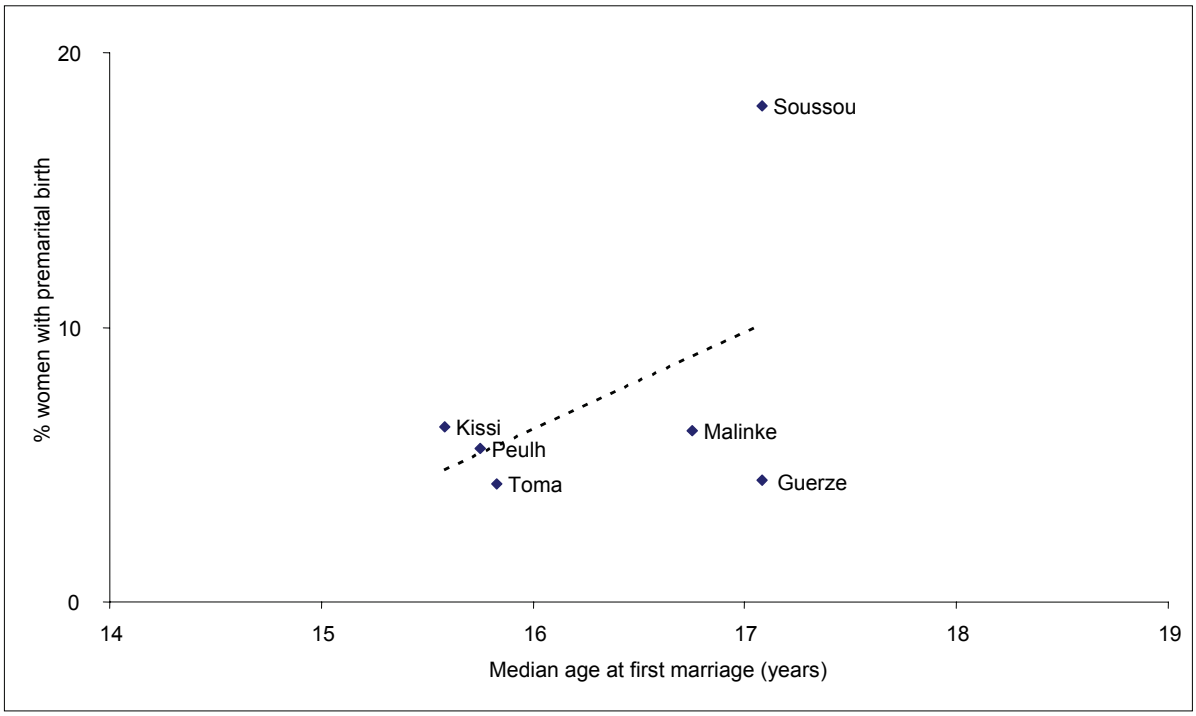
Guinea has a low median age at first marriage (16.4 years), a low proportion of women who never marry (0.1 percent), and a low level of premarital fertility (3.3 percent for all births, 8.1 percent for women). Differentials in premarital fertility by ethnicity vary from 1.3 to 7.2 percent for all births, and from 4.3 to 18.1 percent for women. The prevalence of premarital intercourse is low, varying from 12 to 37 percent. The only group that stands out is the Soussou, which have the highest level of urban residence. Correlation of premarital fertility with urban residence is high (0.871), whereas correlation with age at marriage is low. This is because the Soussou marry at about the same age as other groups (Malinke, Guerze) that have much lower premarital fertility.

Table 3 Premarital fertility and nuptiality indicators, Guinea

Ethnolinguistic group	Number of women surveyed	Percent urban	Median age at first marriage (years)	Percent age 40-49 never married	Percent premarital births	Percent women with premarital birth	Percent premarital intercourse
Sousou	1,389	50.4	17.1	0.0	7.2	18.1	37.1
Peulh	2,222	25.2	15.8	0.0	2.4	5.6	11.7
Malinke	1,985	34.2	16.8	0.3	2.5	6.2	24.8
Kissi	353	21.8	15.6	0.0	2.9	6.4	22.1
Toma	180	8.0	15.8	0.0	1.3	4.3	23.9
Guerze	511	19.9	17.1	0.0	1.8	4.5	37.9
Other and unknown	113	53.3	16.3	0.0	4.1	11.0	36.4
Total	6,753	32.2	16.4	0.1	3.3	8.1	23.5

Source: Authors' calculations from 1999 DHS survey.

Figure 1 Correlation between premarital fertility and age at first marriage, Guinea



KENYA

Kenya has a great wealth of high-quality demographic data: a WFS survey in 1978 and four DHS surveys, in 1988, 1993, 1998, and 2003, all of about the same sample size (Table 1). The WFS survey contained more details on ethnic groups with 42 distinct categories, but did not include what became one of the leading groups later on, the Kalenjin. However, the other categories were compatible with those of the DHS surveys.

Table 1 Sample size and main characteristics of surveys, Kenya

Kenya	WFS 1978	DHS 1988	DHS 1993	DHS 1998	DHS 2003
No. of women interviewed	8,093	7,150	7,540	7,881	8,195
No. of ethnic categories, African	42	9	10	11	14
Percent other and unknown	1.0	6.7	4.8	2.9	1.4

The four DHS surveys were quite compatible, with basically the same groups. We chose to combine the last three surveys (1993, 1998, and 2003), because this provided the opportunity to include three small but important groups: the Masai, the Somali, and the Taita/Taveta. The Masai and the Taita/Taveta were not detailed in the 1988 survey. Cumulating the three surveys gave more than 250 women for these small groups. Note that the Masai were not detailed in 1993, but were in a large enough number in the last two surveys combined.

Table 2 Distribution of ethnic groups by survey, Kenya

Origin	Ethnolinguistic group	DHS 1993	DHS 1998	DHS 2003
African	Kalenjin	11.7	12.6	10.1
	Kamba	13.5	12.8	11.4
	Kikuyu	20.6	17.9	23.0
	Kisii	7.2	10.9	5.7
	Luhya	16.1	14.5	15.0
	Luo	11.4	13.6	12.0
	Masai	na	1.4	2.3
	Meru/Embu	6.9	7.2	7.2
	Mijikenda/Swahili	6.5	5.0	5.0
	Somali	0.3	0.2	3.6
	Taita/Taveta	1.1	1.0	1.2
Other	Other and unknown	4.8	2.9	3.4
	Total	100.0	100.0	100.0

na = Not applicable

The consistency of ethnicity data was remarkable, and most likely the five surveys could have been combined if necessary (Table 2). Ethnicity was defined as the main language spoken at home (V131). The distribution of women 15-49 by main ethnolinguistic groups was similar in the three selected surveys. Only a few differences were statistically significant, but without consequence. Kalenjin and Kisii were somewhat over-represented and Kikuyu somewhat underrepresented in 1998, while none of the other groups were significantly different from the average in 1993 and 2003.

Premarital Fertility by Ethnicity

Kenya is a country with relatively high age at first marriage (19.1 years), a low proportion of women who never marry (2.7 percent), and a high level of premarital fertility (11.2 percent for all births, 30.7 percent for women). Differentials in premarital fertility by ethnicity were marked for all births (2.3 to 16.6 percent), and for women (7.7 to 40.5 percent). The prevalence of premarital intercourse was high (65.7 percent), with marked differences among the ethnic groups, from 6.7 percent to 77.8 percent.

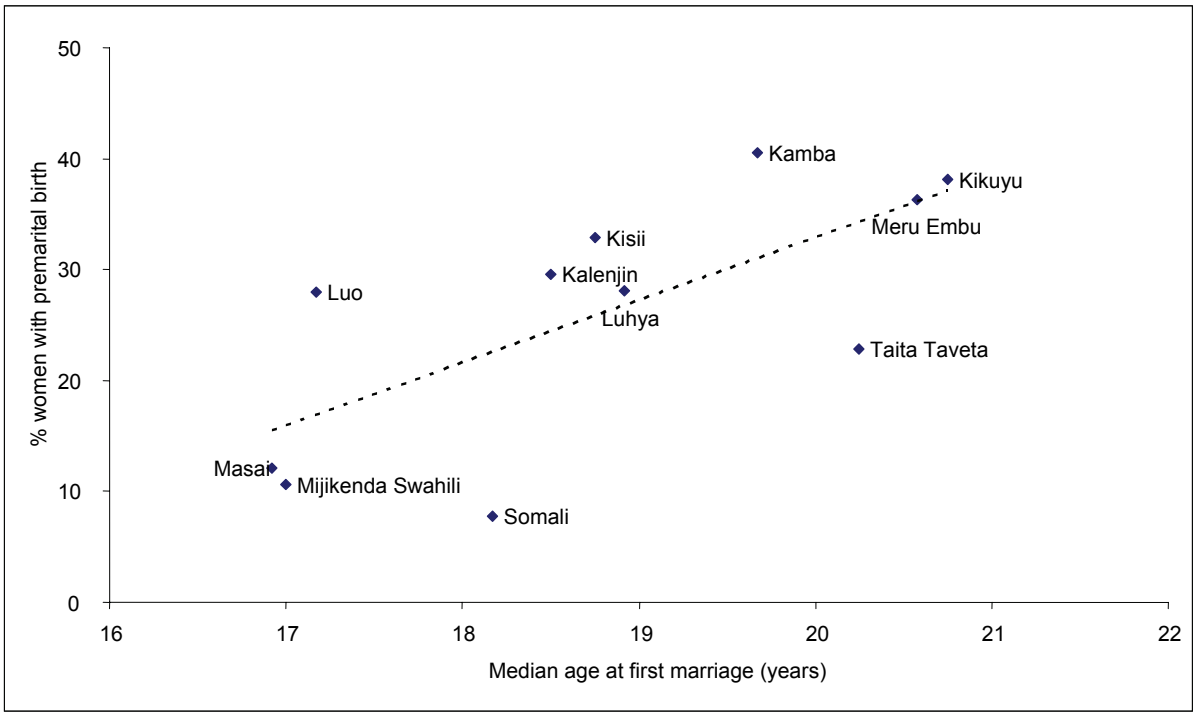
Table 3 Premarital fertility and nuptiality indicators, Kenya

Ethnolinguistic group	Number of women surveyed	Percent urban	Median age at first marriage (years)	Percent age 40-49 never married	Percent premarital births	Percent women with premarital birth	Percent premarital intercourse
Kalenjin	3,055	5.6	18.5	2.0	11.1	29.5	54.3
Kamba	2,402	20.9	19.7	2.4	15.0	40.5	77.8
Kikuyu	4,738	30.7	20.8	6.3	16.6	38.1	73.6
Kisii	1,648	11.6	18.8	1.3	10.7	32.9	67.7
Luhya	3,498	21.9	18.9	1.1	9.0	28.1	66.1
Luo	2,745	29.8	17.2	0.3	8.6	27.9	74.9
Masai	232	4.0	16.9	0.8	4.0	12.1	53.3
Meru/Embu	1,428	13.7	20.6	3.9	14.3	36.3	75.3
Mijikenda/Swahili	1,726	27.7	17.0	2.1	4.9	10.6	25.3
Somali	638	38.0	18.2	1.3	2.3	7.7	6.7
Taita/Taveta	702	30.0	20.3	8.8	9.0	22.9	51.8
Other and unknown	804	33.7	19.2	0.1	6.1	15.0	47.7
Total	23,616	22.1	19.1	2.7	11.2	30.7	65.7

Source: Authors' calculations after merging data from 1993, 1998, and 2003 DHS surveys.

Surprisingly, correlation of premarital fertility with urban residence was not significant, and even somewhat negative (-0.209), whereas correlation with age at first marriage was positive (0.692), a value comparable with other countries. Note that Kenya is primarily rural (78 percent in the samples).

Figure 1 Correlation between premarital fertility and age at first marriage, Kenya



LIBERIA

Liberia has conducted only one DHS survey, in 1986, with details on 16 ethnic groups and using a reasonable sample size (Table 1). Liberia is one of the rare African countries in which high premarital fertility has been documented, the highest in West Africa. We therefore pushed our analysis to its limits, including some ethnic groups with less than 250 women.

Table 1 Sample size and main characteristics of DHS survey, Liberia

Liberia	DHS 1986
No. of women interviewed	5,239
No. of ethnic categories, African	16
Percent other and unknown	4.3

Among the small groups, all were kept except the Belle (14 women), the Dey (23 women), and the Mande (35 women).

Table 2 Distribution of ethnic groups in survey, Liberia

Origin	Ethnolinguistic group	DHS 1986
African	Bassa	12.7
	Gbandi	2.8
	Gio	7.7
	Gola	4.6
	Grebo	7.3
	Kissi	3.6
	Kpelle	16.3
	Krahn	4.2
	Krou/Sapo	10.6
	Lorma	6.0
	Mandingue	6.1
	Mano	7.9
	Vai	3.8
Other	Other and unknown	6.6
	Total	100.0

Premarital Fertility by Ethnicity

Liberia has a medium age at first marriage (17.2 years), a low proportion of women who never marry (1.1 percent), and a high level of premarital fertility (13.0 percent for all births, 29.6 percent for women). Differentials in premarital fertility by ethnicity were small, from 8.0 to 16.8 percent for all births, and from 14.6 to 41.1 percent for women. The prevalence of premarital intercourse was high (68.4 percent on average, ranging from 53.1 to 77.9 percent), with only minor differences among ethnic groups.

Table 3 Premarital fertility and nuptiality indicators, Liberia

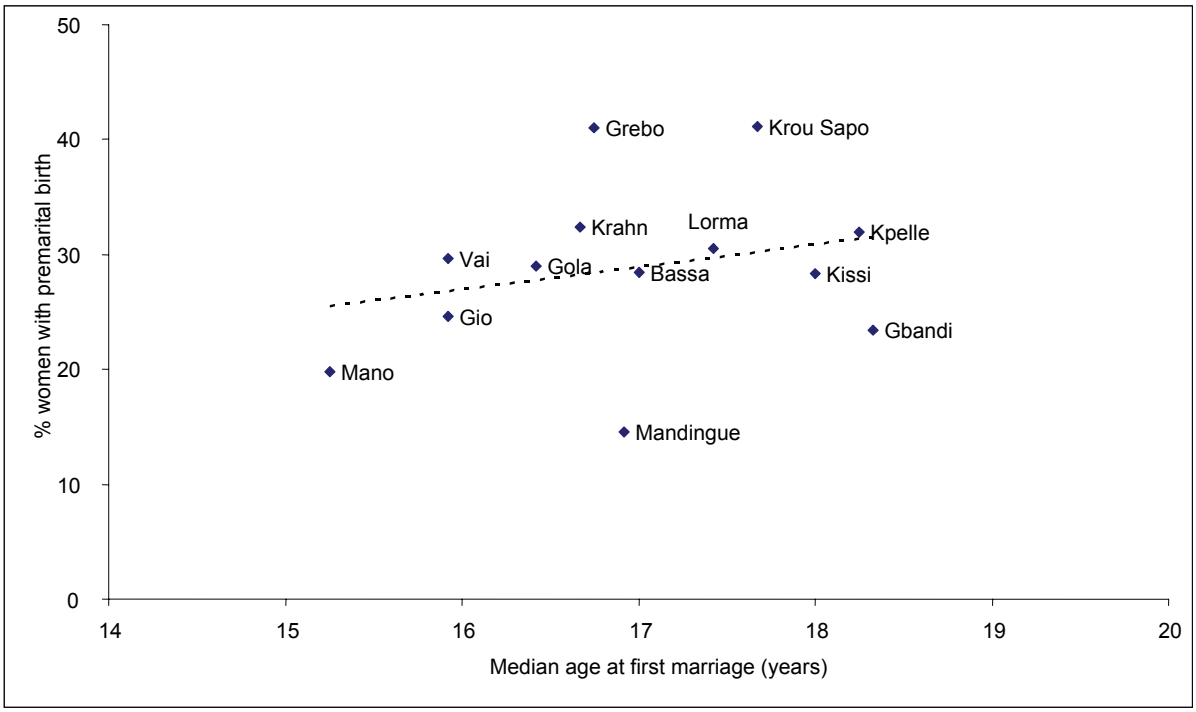
Ethnolinguistic group	Number of women surveyed	Percent urban	Median age at first marriage (years)	Percent age 40-49 never married	Percent premarital births	Percent women with premarital birth	Percent premarital intercourse
Bassa	490	43.4	17.0	1.5	14.1	28.4	65.8
Gbandi	109	19.4	18.3	0.0	11.9	23.5	65.8
Gio	294	26.5	15.9	0.0	11.7	24.6	60.0
Gola	177	36.7	16.4	0.0	11.2	29.0	68.2
Grebo	570	51.7	16.8	0.0	15.4	41.0	71.7
Kissi	137	55.8	18.0	0.0	12.3	28.3	68.5
Kpelle	661	31.4	18.3	2.4	12.6	31.9	77.9
Krahn	521	34.4	16.7	1.8	13.3	32.4	67.9
Krou/Sapo	1,039	60.1	17.7	3.0	16.8	41.1	76.6
Lorma	230	50.6	17.4	0.0	12.6	30.6	73.6
Mandingue	262	60.1	16.9	0.0	8.0	14.6	53.1
Mano	301	15.3	15.3	0.0	8.1	19.8	55.3
Vai	145	53.2	15.9	0.0	12.9	29.7	70.6
Other and unknown	303	73.6	18.9	0.0	16.0	30.8	68.2
Total	5,239	43.2	17.2	1.1	13.0	29.6	68.4

Source: Authors' calculations from 1986 DHS survey.

Correlation of premarital fertility with urban residence was small but positive, (p = +0.343), as was the correlation with age at first marriage (p = +0.252). Both values are much lower than those of other countries. Note that overall, Liberia is almost half urban (43.2 percent in the samples).

Two groups stand out with higher than expected premarital fertility: the Grebo and the Krou/Sapo. Urban residence is also higher for these groups. In contrast, two groups stand out with lower than expected premarital fertility: the Mandingue (Mandinka), who are primarily urban, and the Mano, who are primarily rural.

Figure 1 Correlation between premarital fertility and age at first marriage, Liberia



MALAWI

Malawi has conducted two DHS surveys, in 1992 and 2000. The first survey did not provide ethnicity, but the second provided nine ethnic groups with a large sample size (Table 1).

Table 1 Sample size and main characteristics of DHS surveys, Malawi

Malawi	DHS 1992	DHS 2000
No. of women interviewed	4,849	13,220
No. of ethnic categories, African	0	9
Percent other and unknown	-	2.7

Since the sample size was large enough in the 2000 survey, all ethnic groups were kept for final analysis (Table 2).

Table 2 Distribution of ethnic groups in survey, Malawi

Origin	Ethnolinguistic group	DHS 2000
African	Chewa	32.3
	Tumbuka	7.9
	Lomwe	18.2
	Tonga	1.8
	Yao	13.8
	Sena	4.0
	Nkonde	1.3
	Ngoni	12.6
	Amanganja/Anyanja	5.5
Other	Other and unknown	2.7
	Total	100.0

Premarital Fertility by Ethnicity

Malawi is a homogenous country with respect to nuptiality and fertility indicators. Age at first marriage ranges from 17.2 to 18.3 years, (average of 17.8 years) and the proportion of women who never marry is negligible (0.2 percent). Premarital fertility ranges from 2.3 to 5.1 percent for all births (average of 3.7 percent) and from 5.8 to 14.0 percent for women (average of 9.9 percent). The prevalence of premarital intercourse ranges from 32.1 to 47.0 percent (average of 39.4 percent).

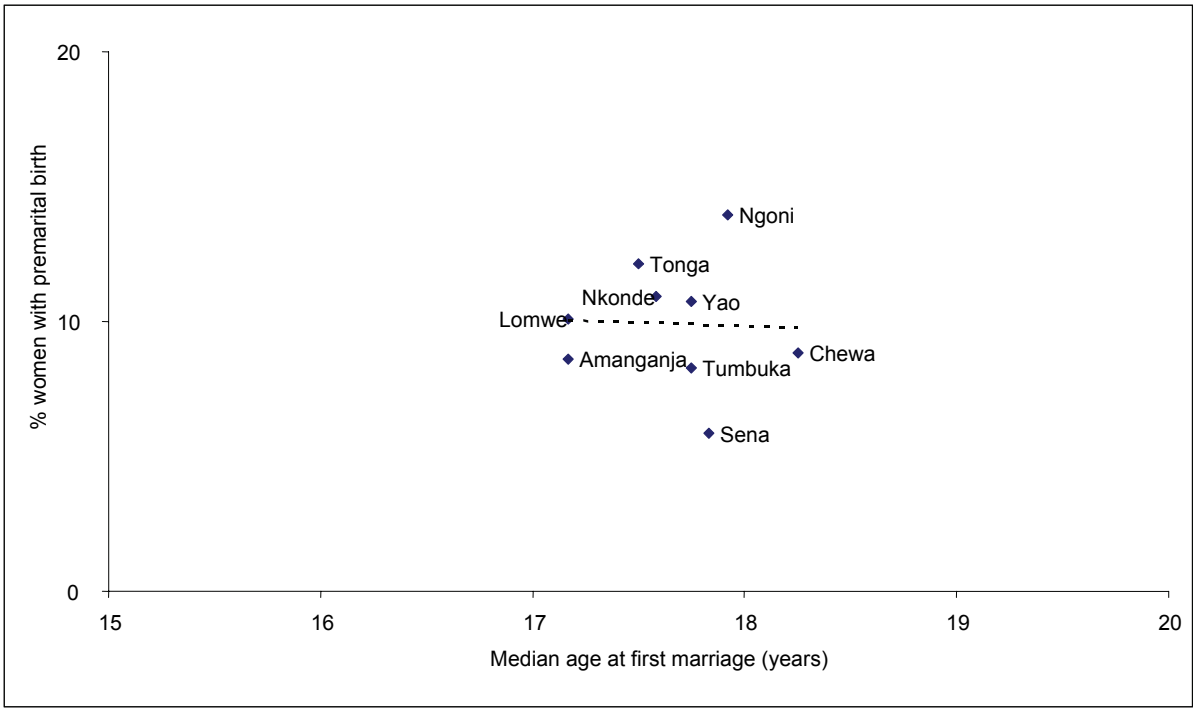
Unlike most African countries, premarital fertility in Malawi is not related to age at first marriage, and has only a moderate correlation with urban residence (ρ = 0.518). Two groups stand out from the others: the Ngoni, with higher premarital fertility (14.0 percent), and the Sena, who are primarily rural and have a lower level of premarital fertility (5.8 percent).

Table 3 Premarital fertility and nuptiality indicators, Malawi.

Ethnolinguistic group	Number of women surveyed	Percent urban	Median age at first marriage (years)	Percent age 40-49 never married	Percent premarital births	Percent women with premarital	Percent premarital intercourse
Chewa	3,536	13.6	18.3	0.0	3.7	8.8	35.8
Tumbuka	1,291	27.5	17.8	0.0	2.8	8.3	32.1
Lomwe	2,589	13.2	17.2	0.4	3.7	10.1	45.7
Tonga	286	30.9	17.5	2.1	5.1	12.1	45.1
Yao	1,928	14.6	17.8	0.4	4.5	10.7	47.0
Sena	455	8.5	17.8	0.0	2.3	5.8	32.4
Nkonde	437	34.4	17.6	0.0	3.3	10.9	35.7
Ngoni	1,462	21.6	17.9	0.5	4.4	14.0	38.0
Amanganja/Anyanja	745	10.8	17.2	0.2	3.4	8.6	42.4
Other and unknown	491	11.4	17.3	0.0	3.2	8.8	29.4
Total	13,220	15.9	17.8	0.2	3.7	9.9	39.4

Source: Authors' calculations from 2000 DHS survey.

Figure 1 Correlation between premarital fertility and age at first marriage, Malawi



MALI

Mali has conducted three DHS surveys, in 1987, 1995, and 2001. The first survey provided six ethnic groups, while the two others provided nine groups with the same coding and larger sample sizes (Table 1). Furthermore the first survey gave higher than expected levels of premarital fertility. Therefore, the surveys of 1995 and 2001 were lumped together for final analysis.

Table 1 Sample size and main characteristics of DHS surveys, Mali

Mali	DHS 1987	DHS 1995	DHS 2001
No. of women interviewed	3,200	9,740	12,849
No. of ethnic categories, African	6	9	9
Percent other and unknown	11.3	11.1	5.5

The distribution of women age 15-49 by main ethnic group was basically the same in the two surveys. There were fewer "other and unknown" in the 2001 survey despite having the same ethnic groups. There were more Bambara, Sonrai, and Tamacheck, but fewer Dogon. These small differences do not matter for this study.

Table 2 Distribution of ethnic groups by survey, Mali

Ethnolinguistic group	DHS 1995	DHS 2001	P-value	Significance
Bambara	29.0	33.0	0.000	*
Malinke	7.6	9.2	0.000	*
Peulh	14.5	14.0	0.301	
Sarakole/Soninke	12.7	12.3	0.456	
Sonrai	3.3	5.9	0.000	*
Dogon	8.8	7.3	0.000	*
Tamacheck	0.8	2.0	0.000	*
Senoufo/Minianka	8.9	8.3	0.127	
Bobo	3.3	3.8	0.066	
Other and unknown	11.1	4.2	0.000	*
Total	100.0	100.0		

*p <0.05

Premarital Fertility by Ethnicity

Mali is a homogenous country with respect to nuptiality and fertility indicators. Early marriage is common and the level of premarital fertility is low (Table 2). Age at first marriage ranges from 15.7 to 17.0 years (average of 16.2 years), and the proportion of women who never marry is negligible (0.1 percent). Premarital fertility estimates range from 1.5 to 3.6 percent for all births (average of 2.7 percent) and from 4.6 to 11.1 percent for women (average of 8.1 percent). The prevalence of premarital intercourse ranges from 18.6 to 34.0 percent (average of 26.0 percent).

Unlike many African countries, premarital fertility is not related to age at first marriage (ρ = 0.088), and has no correlation with urban residence (ρ = 0.126).

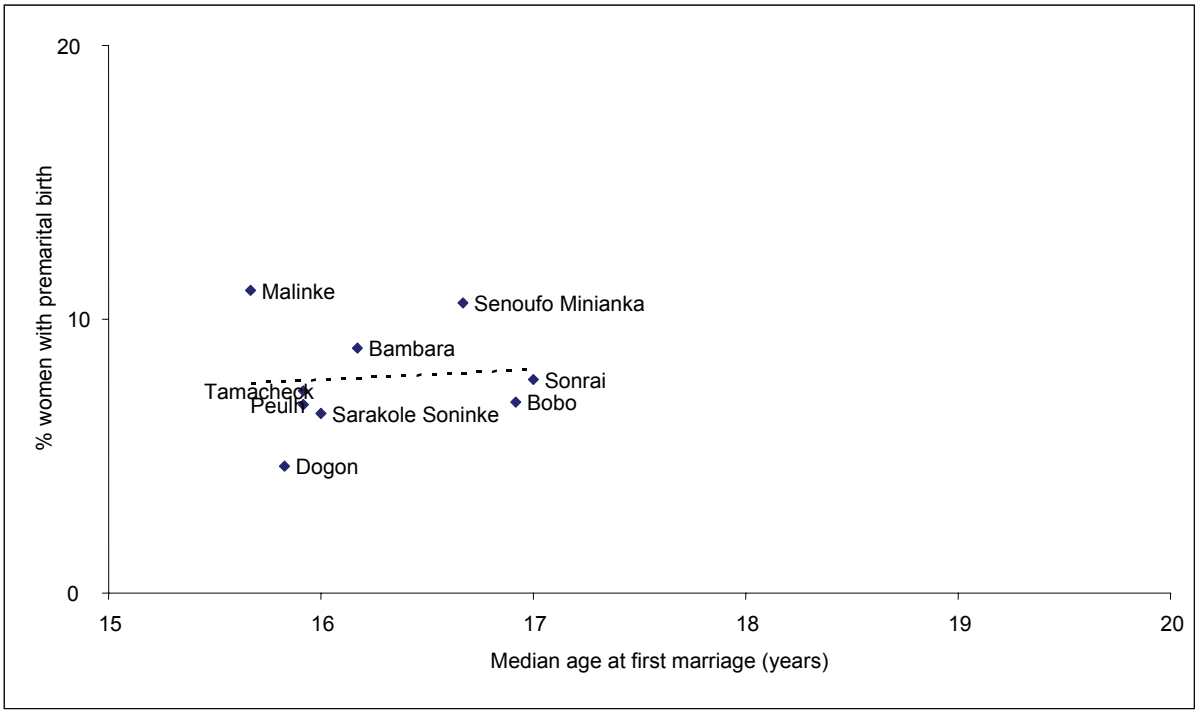
Because of the large sample size, most differences in the prevalence of premarital fertility were statistically significant—with the exception of the Sonrai and the Tamacheck—but are of such small magnitude as to have little sociological importance.

Table 3 Premarital fertility and nuptiality indicators, Mali

Ethnolinguistic group	Number of women surveyed	Ppercent urban	Median age at first marriage (years)	Percent age 40-49 never married	Percent premarital births	Percent women with premarital birth	Percent premarital intercourse
Bambara	6,413	25.8	16.2	0.0	2.9	8.9	28.2
Malinke	1,968	35.3	15.7	0.0	3.6	11.1	34.0
Peulh	3,119	31.7	15.9	0.1	2.3	6.9	22.5
Sarakole/Soninke	2,841	34.6	16.0	0.3	2.4	6.6	19.6
Sonrai	1,722	50.2	17.0	0.0	3.0	7.8	25.9
Dogon	1,472	17.9	15.8	0.0	1.5	4.6	19.0
Tamacheck	864	49.1	15.9	0.2	2.9	7.4	18.6
Senoufo/Minianka	1,736	25.4	16.7	0.0	3.5	10.6	32.7
Bobo	760	29.1	16.9	0.7	1.9	7.0	27.4
Other and unknown	1,658	43.1	16.4	0.0	3.0	8.0	25.6
Total	22,553	30.8	16.2	0.1	2.7	8.1	26.0

Source: Authors' calculations after merging data from 1995 and 2001 DHS surveys.

Figure 1 Correlation between premarital fertility and age at first marriage, Mali



MOZAMBIQUE

Mozambique conducted two DHS surveys, in 1997 and 2003. In 1997, ethnicity was defined as the main language spoken at home (V131), and was grouped into five large language families plus Portuguese speakers, which include mainly educated Africans and mixed races (*assimilados*). In addition, the mother tongue ("language learned to speak") was also recorded (S119) and coded in 50 categories. The 2003 survey also provided the "language learned to speak" in 26 detailed categories (S119). The two surveys were compatible to a large extent, since most of the additional categories in the first survey were small groups.

Table 1 Sample size and main characteristics of DHS surveys, Mozambique

Mozambique	DHS 1997	DHS 2003
No. of women interviewed	7,143	12,418
No. of ethnic categories, African	50	26
Percent other and unknown	1.3	3.2

After combining the two surveys, 16 groups large enough for proper estimation of premarital fertility were kept for final analysis (Table 2).

Table 2 Distribution of ethnic groups by survey, Mozambique

Origin	Ethnolinguistic group	DHS 1997	DHS 2003	Significance
Mixed	Portuguese	3.6	9.7	*
African	Emakhuwa	26.2	25.5	
	Xichangana	15.8	13.8	*
	Elomxe	8.0	6.3	*
	Cisena	12.4	6.4	*
	Echuwabo	2.5	3.4	*
	Bitonga	2.4	1.8	*
	Chichewa	3.1	4.9	*
	Nhungue	1.8	3.7	*
	Chitswa	6.1	6.6	
	Naconde	0.8	1.8	*
	Ndau	2.1	3.6	*
	Ronga	3.6	1.6	*
	Chitewe	1.9	1.4	*
	Chope	3.0	1.9	*
	Jaua	1.4	1.7	
Other and unknown		5.7	5.3	
Total		100.0	100.0	

Note: The spelling of names of ethnic groups varied between the two surveys; the spelling in the 2003 survey was used in this report.
*p <0.05

Some discrepancies in the frequency of ethnic groups could be noted between the two surveys, and most of the differences were statistically significant. Portuguese speakers accounted only for 3.6 percent in the first survey, but for 9.7 percent in the second survey, indicating probably some mixture between mother tongue, language spoken at home or language learned in school. The Cisena had an abnormally high presence in the first sample and an abnormally low presence in the second; this may be a result of the sampling procedure. The Nhungue had an abnormally low presence in the first survey, whereas the Ronga and Chope were over represented. In any case, with the exception of the Portuguese speakers, which is a mixed category anyway, these discrepancies appear as minor.

Premarital Fertility by Ethnicity

Mozambique has medium age at first marriage (17.4 years) and a medium level of premarital fertility (6.7 percent of all births, 15.3 percent of women) (Table 3). Between African groups, age at marriage varied from 15.7 to 19.4 years. It was higher for Portuguese speakers, who are more urbanized (83.1 percent). Similarly, premarital fertility varied from 5.8 to 34.1 percent among the African groups, and was 30.6 percent for Portuguese speakers. The prevalence of premarital intercourse, which ranged from 31.6 to 72.1 percent among African groups, was 80.9 percent among Portuguese speakers.

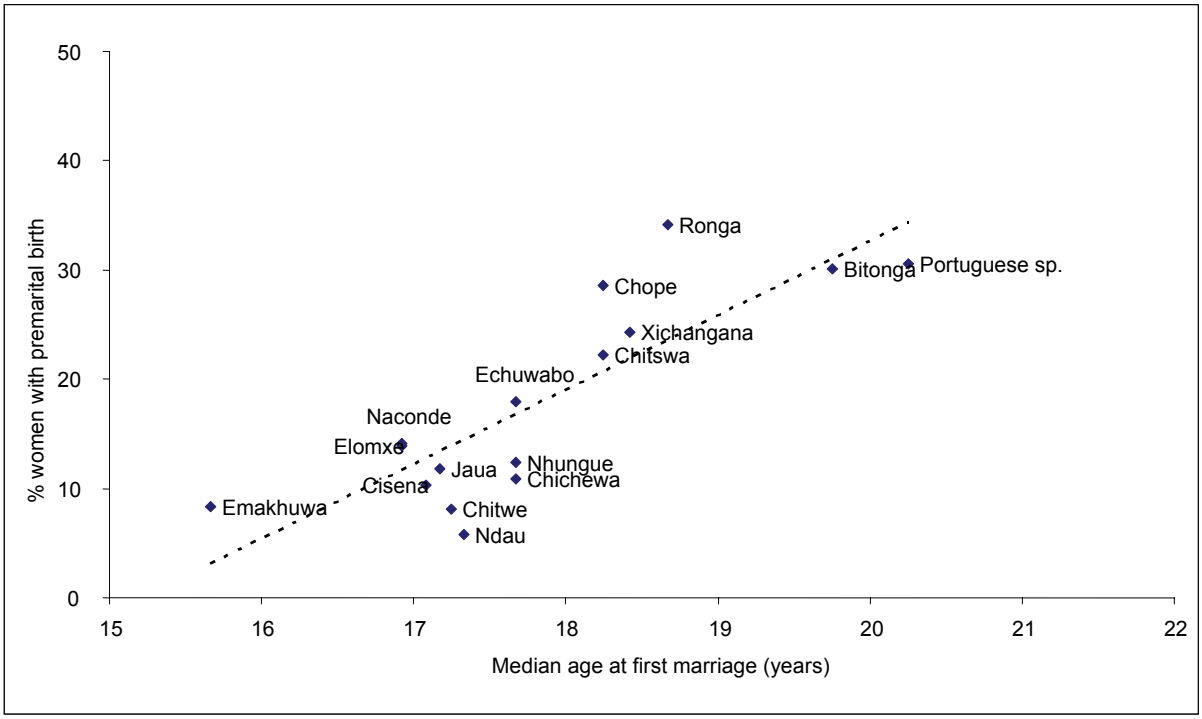
Table 3 Premarital fertility and nuptiality indicators, Mozambique

Ethnolinguistic group	Number of women surveyed	Percent urban	Median age at first marriage (years)	Percent age 40-49 never married	Percent premarital births	Percent women with premarital birth	Percent premarital intercourse
Portuguese	1,761	83.1	20.3	7.5	16.5	30.6	80.9
Emakhuwa	4,051	22.1	15.7	1.2	3.7	8.4	31.6
Xichangana	3,987	41.9	18.4	1.7	11.5	24.3	64.0
Elomxe	725	8.3	16.9	2.4	6.4	13.9	52.8
Cisena	1,705	26.1	17.1	0.0	4.3	10.3	34.7
Echuwabo	473	23.9	17.7	2.7	8.0	18.0	60.7
Bitonga	504	43.4	19.8	5.8	13.8	30.0	72.1
Chichewa	793	4.6	17.7	1.6	3.5	10.8	50.9
Nhungue	809	31.7	17.7	0.0	4.4	12.4	48.8
Chitswa	1,371	24.0	18.3	4.0	12.3	22.3	60.0
Naconde	290	20.9	16.9	0.0	6.5	14.1	49.3
Ndau	1,076	35.9	17.3	2.8	3.0	5.8	36.6
Ronga	726	81.7	18.7	3.2	14.9	34.1	71.7
Chitewe	620	30.0	17.3	1.7	4.5	8.1	39.0
Chope	556	34.0	18.3	0.8	12.6	28.6	63.8
Jaua	540	25.2	17.2	0.0	4.3	11.8	32.8
Other and unknown	1,210	24.4	17.1	0.8	4.3	9.2	42.8
Total	21,197	31.3	17.4	1.8	6.7	15.3	49.0

Source: Authors' calculations after merging data from 1997 and 2003 DHS surveys.

Correlations between premarital fertility and other factors were high: age at marriage (ρ = 0.975), urban residence (ρ = 0.709), and premarital intercourse (ρ = 0.919). There is little deviation from the linear patterns for age at marriage (Figure 1) and urban residence.

Figure 1 Correlation between premarital fertility and age at first marriage, Mozambique



NAMIBIA

Namibia conducted two DHS surveys, in 1992 and 2000. Ethnicity was defined as the main language spoken at home (V131). The first DHS survey coded ten ethnolinguistic group categories: seven of African origin, and three of European origin (Afrikaans, English and German). The second DHS survey coded the same categories, though two of the European groups (German and English) were lumped together.

Table 1 Sample size and main characteristics of DHS surveys, Namibia

Namibia	DHS 1992	DHS 2000
No. of women interviewed	5,421	6,755
No. of ethnic categories, African	7	7
No. of ethnic categories, European	3	2
Percent other and unknown	10.7	0.9

There were some minor inconsistencies in definitions of ethnolinguistic groups between the two surveys. For example, in the 1992 DHS, the group of "other and unknown" was much larger than in 2000 (10.7 percent versus 0.9 percent). In fact, it included a number of smaller groups living in the northeast. These could be identified by referring to the main language used for the interview (SLANG), which was in most cases either Kwangali or Lozi. The "other and unknown" ethnicity variable in the 1992 DHS was therefore recoded according to the language used for the interview. After this procedure, the two distributions of ethnicity were comparable in the two DHS surveys, and compatible with the 2001 Census information (Table 2).

Table 2 Distribution of ethnic groups by survey, Namibia

Origin	Ethnolinguistic group	DHS 1992	DHS 2000	Census 2001
African	Ovambo/Oshivambo	48.4	48.9	49.4
	Kavango/Kwangali	10.6	8.9	10.1
	Nama/Damara	14.6	14.7	9.6
	Herero/OshiHerero	6.3	10.3	5.1
	Caprivi/Lozi	6.0	4.1	3.8
	San	1.0	1.3	-
	Tswana	0.6	0.2	-
European and mixed	Afrikaans	11.4	10.1	8.2
	English	0.7	0.7	-
	German	0.5	-	-
	Other and unknown		0.9	13.7
	Total	100.0	100.0	100.0

Note: The data for the 1992 DHS survey were analyzed after correction of "other and unknown" from language of interview.

Note that since only the main language spoken at home was recorded in the survey, some categories are somewhat fuzzy. This is the case in Afrikaans-speaking groups in particular, which include people of European origin (Afrikaner), mixed races (Rohobotan/Baster), and some urbanized people of African origin. Of course, there are many more ethnic groups described in Namibia; some 25 ethnolinguistic groups have been described, not counting European languages and tiny minorities of foreign origin (Indians, Portuguese, etc.).

Both DHS surveys were compatible in the definition of ethnicity, in the population distribution by ethnolinguistic groups, and in the ranking of premarital fertility. Data are therefore presented for both surveys combined (Table 3).

Table 3 Premarital fertility and nuptiality indicators, Namibia

Ethnolinguistic group	Number of women surveyed	Percent urban	Median age at first marriage (years)	Percent age 40-49 never married	Percent premarital births	Percent women with premarital birth	Percent premarital intercourse
English/German	108	94.9	23.5	1.2	17.7	26.5	71.0
Afrikaans	1,411	86.4	23.7	9.8	38.6	55.5	74.0
Ovambo/Oshivambo	4,910	25.2	29.6	18.6	44.7	65.2	77.0
Kavongo/Kwangali	1,256	16.3	18.8	0.5	13.1	27.9	57.9
Caprivi/Lozi	966	27.5	21.0	0.9	25.6	52.4	80.7
Damara/Nama	2,130	65.7	27.2	18.8	57.0	70.8	86.8
Herero	1,149	52.2	30.1	30.9	60.0	76.2	91.1
San	154	2.2	20.6	4.2	23.5	26.8	59.1
Other and unknown	92	78.0	29.8	38.7	53.1	54.0	80.8
Total	12,176	39.9	27.0	16.0	42.7	60.4	77.5

Source: Authors' calculations after merging data from 1992 and 2000 DHS surveys.

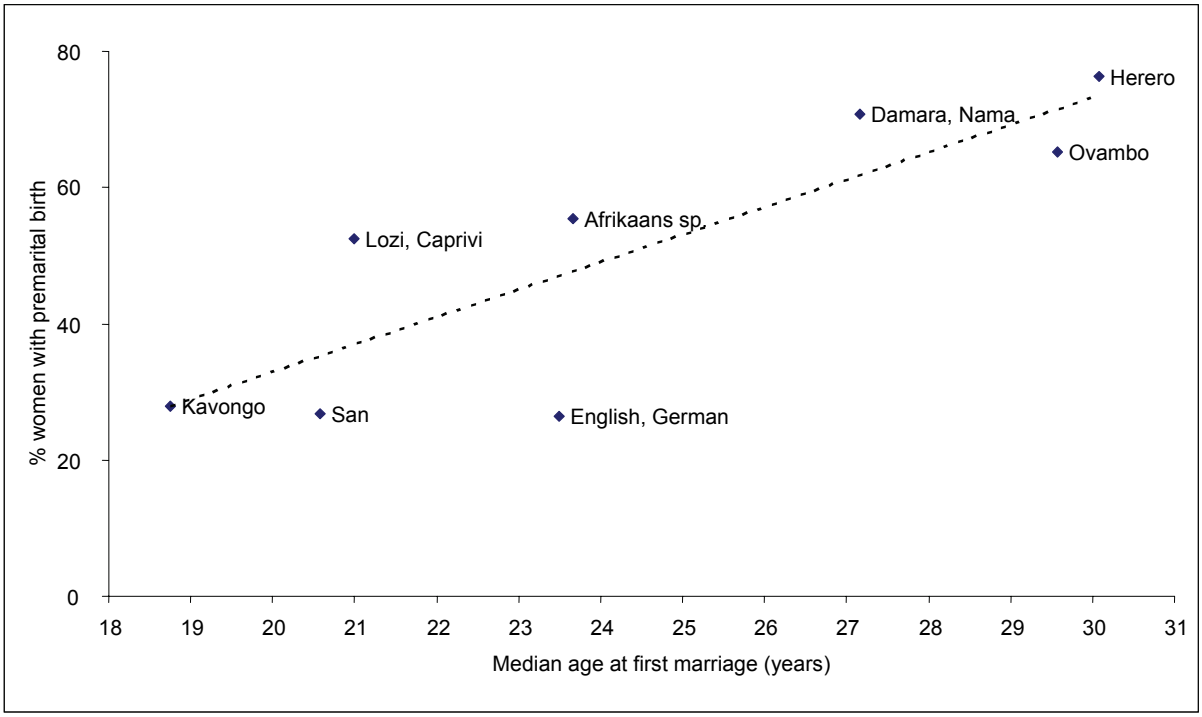
Premarital Fertility by Ethnicity

Namibia has a very high median age at first marriage (25.9 years), a high proportion of women who never marry (16.0 percent), and a high level of premarital fertility (42.7 percent for all births and 60.4 percent for women).

Differentials in premarital fertility by ethnicity are marked, varying from 13 to 60 percent for all births, and from 29 to 79 percent for women. Premarital fertility is closely associated with age at first marriage ($\rho = 0.831$), as seen in Figure 1, and with the prevalence of premarital intercourse ($\rho = 0.900$); however, it is not associated with urban residence ($\rho = 0.195$).

A detailed analysis of premarital fertility in Namibia was published elsewhere (Garenne and Zwang, 2005). Differentials in premarital fertility by ethnicity were stable after controlling for a variety of socioeconomic factors, including urban residence, level of education, and access to mass media. This highlights the major role of cultural factors in determining levels of premarital fertility.

Figure 1 Correlation between premarital fertility and age at first marriage, Namibia



NIGER

Niger conducted two DHS surveys, in 1992 and in 1998 (Table 1). We were able to combine the two surveys since both provided the same distribution of ethnic groups. Ethnicity was defined as the main language spoken at home (V131). The DHS survey coded nine ethnolinguistic group categories of African origin, and proportions of "other and unknown" were small in both surveys.

Table 1 Sample size and main characteristics of DHS surveys, Niger

Niger	DHS 1992	DHS 1998
No. of women interviewed	6,503	7,577
No. of ethnic categories, African	9	9
Percent other and unknown	2.4	1.8

The two surveys were compatible in the distribution of ethnic groups, with some minor differences (Table 2). However, some groups were small in size and had to be lumped together in the "other and unknown" category for final analysis.

Table 2 Distribution of ethnic groups by survey, Niger

Origin	Ethnolinguistic group	DHS 1992	DHS 1998	P-value	Significance
African	Arab	0.2	0.2	0.462	
	Djerma	22.4	21.4	0.164	
	Gourmantche	0.3	0.4	0.190	
	Hausa/Haoussa	54.5	58.4	0.000	*
	Kanouri	5.3	4.3	0.007	*
	Mossi	0.0	0.2	0.039	*
	Peulh	4.6	4.9	0.460	
	Touareg	10.0	8.4	0.001	*
	Toubou	0.3	0.1	0.000	*
	Other and unknown	2.4	1.8	0.013	*
	Total	100.0	100.0		

*p <0.05

Premarital Fertility by Ethnicity

Niger has a low age at first marriage and a low level of premarital fertility (Table 3). Overall, all indicators of premarital fertility are on the low side in Niger: premarital births (1.0 percent), women with a premarital birth (2.8 percent), premarital intercourse (4.5 percent), proportion never married (0.2 percent), median age at first marriage (15.0 years), and proportion urban (19 percent).

Niger is markedly homogenous with respect to ethnicity. There was hardly any variation among the variables examined. The only group that stands out is the "other and unknown," which primarily includes urban residents, many originally from other countries.

Table 3 Premarital fertility and nuptiality indicators, Niger

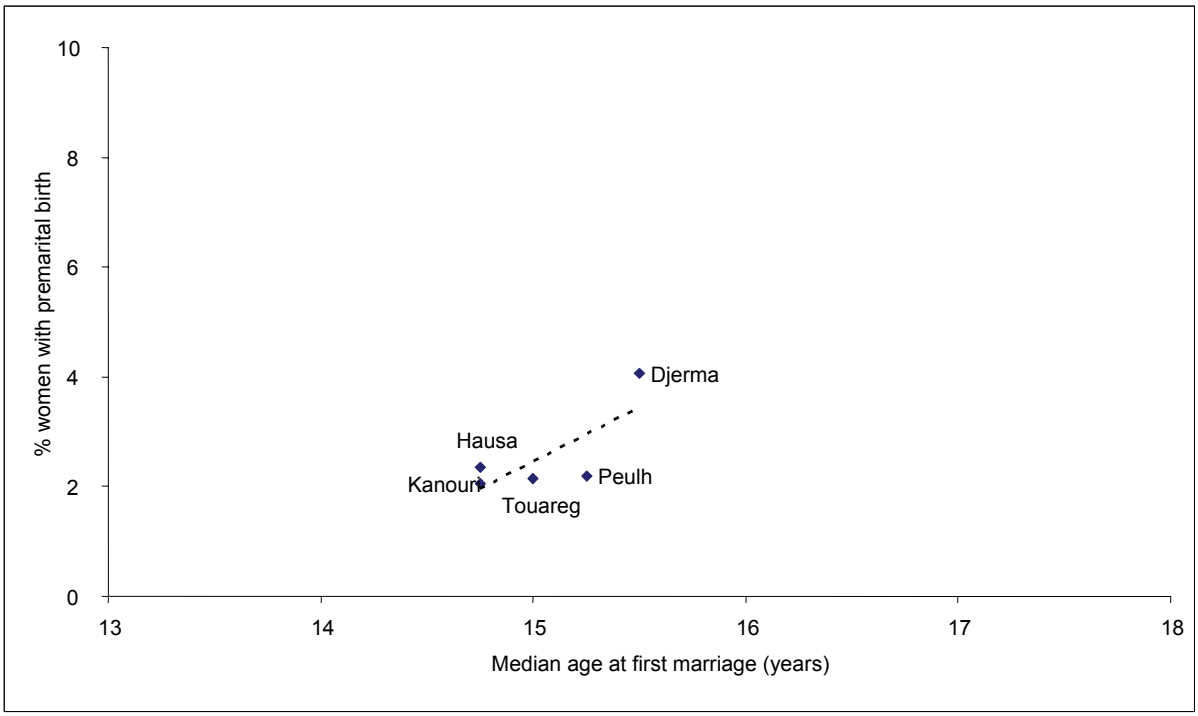
Ethnolinguistic group	Number of women surveyed	Percent urban	Median age at first marriage (years)	Percent age 40-49 never married	Percent premarital births	Percent women with premarital birth	Percent premarital intercourse
Djerma	3,560	23.3	15.5	0.3	1.5	4.1	4.9
Hausa	7,405	15.9	14.8	0.0	0.8	2.3	3.7
Kanouri	565	17.1	14.8	0.0	0.8	2.1	3.4
Peulh	734	22.6	15.3	0.0	0.9	2.2	5.2
Touareg	1,148	12.7	15.0	0.0	0.7	2.1	5.0
Other and unknown	668	61.5	15.5	4.0	3.6	9.7	19.8
Total	14,080	19.0	15.0	0.2	1.0	2.8	4.5

Source: Authors' calculations after merging data from 1992 and 1998 DHS surveys.

The level of premarital fertility among ethnic groups that extend across national borders is similar to that of their counterparts in the neighboring countries. Hausa, Kanouri and Fulani (Peulh) in Niger have patterns of behavior similar to those of related groups in Nigeria. This is also the case for the Touareg in Niger and Burkina Faso.

There is a clear relationship between premarital fertility and urban residence (ρ = 0.977). This is primarily because of the "other and unknown" category, although there was a small relationship among the five indigenous groups because of the Djerma (ρ = 0.612) (Figure 1). Correlation with age at marriage was also significant, despite small differentials for the same reasons (ρ = 0.761).

Figure 1 Correlation between premarital fertility and age at first marriage, Niger



NIGERIA

Nigeria is a special case in Africa, both for its large population, as well its extreme ethnic diversity. Some 485 languages appear in the Ethnologue database. The ethnic information gained from DHS surveys is necessarily much more limited in scope.

Nigeria conducted one WFS survey in 1982 and three DHS surveys, in 1990, 1999, and in 2003 (Table 1). All four surveys had some information on ethnicity, though coded in various ways. The WFS had 34 categories, including the most important groups. The 1990 DHS survey had 92 categories; however, labels were provided for only 25 groups and the others could not be used. The last two DHS surveys (1999 and 2003) had the same coding and provided basically the same information, although some of the ethnic groups were very small. Although more could be probably done with ethnicity in Nigeria, only the last two surveys were selected since both provided compatible information, and also provided a large enough sample for statistical inference. Adding a few groups from the other surveys would not have changed the main features of the analysis. Ethnicity was defined as the main language spoken at home (S119 and S118 respectively). The proportion of "other and unknown" was small in the two surveys selected.

Table 1 Sample size and main characteristics of DHS surveys, Nigeria

Nigeria	WFS 1982	DHS 1990	DHS 1999	DHS 2003
No. of women interviewed	9,727	8,781	9,810	7,620
No. of ethnic categories, African	34	92	112	95
Percent other and unknown	15.8	2.3	8.4	10.2

The two surveys were compatible in the distribution of ethnic groups, with some minor differences (Table 2). Large groups (Hausa, Fulani, Yoruba, Igbo) were always well represented, and these four already account for more than half (58 percent) of the total population. Many other groups had enough women interviewed in 1999 and 2003 to be analyzed separately. A final list of 13 groups was kept in addition to the four largest, nine of them with at least 250 women, and four of them with less than 250 women. The smallest group contained 136 women (Table 2).

Groups with smaller sample size were lumped together according to their geographic origin: other groups from the Northern regions (Northwest and Northeast), other groups from North-Central and Southwest regions, and other groups from South and Southeast regions. Regions were based on the 2003 survey (V101).

Premarital Fertility by Ethnicity

Nigeria is a large country with marked differences in demographic patterns and social behavior. Nigeria has a medium level of premarital fertility (4.5 percent for all births, and 11.0 percent for women), a medium age at first marriage (17.8 years), a medium prevalence of premarital intercourse (31.2 percent), a low proportion of women who never marry (1.0 percent), and a moderate level of urban residence (32.4 percent).

Table 2 Distribution of ethnic groups by survey, Nigeria

Ethnolinguistic group	WFS 1982	DHS 1990	DHS 1999	DHS 2003	Difference between 1999 and 2003 surveys: P-value	Difference between 1999 and 2003 surveys: Significance
Hausa	18.6	25.2	18.3	27.0	0.000	*
Fulani	6.8	3.3	4.3	6.1	0.000	*
Kanuri	2.8	2.4	0.7	3.0	0.000	*
Other Northern	1.1	7.4	7.5	6.6	0.019	*
Yoruba	14.4	16.8	19.7	11.4	0.000	*
Tiv	1.1	2.8	1.3	2.2	0.000	*
Nupe	1.1		1.2	0.8	0.008	*
Igbala/Igala	1.9	0.7	2.3	3.0	0.006	*
Idoma	0.8	1.2	1.8	0.8	0.000	*
Ibira/Igbirra	0.3		2.0	0.6	0.000	*
Gwari	1.5	5.8	0.6	1.1	0.000	*
Other Central, West	1.1	0.9	2.9	1.7	0.000	*
Igbo/Ibo	23.7	16.5	15.9	13.6	0.000	*
Ibibio	4.1		4.8	3.8	0.003	*
Ijaw	1.1	1.0	1.4	1.1	0.099	
Edo	0.9	0.5	2.4	0.9	0.000	*
Annang	1.4		1.3	1.7	0.059	
Urhobo	0.8	1.1	1.0	1.1	0.237	
Ogoni/Ogori	0.0		1.0	1.6	0.002	*
Other South and East	1.0	12.0	1.0	1.5	0.011	*
Other and unknown	15.8	2.3	8.4	10.2	0.000	*
Total	100.0	100.0	100.0	100.0		

*p <0.05

These average values hide major differences among ethnic groups. Urban residence is low for small groups such as the Ogoni and the Annang, but it is high for the Yoruba, the Ibira and the Urhobo. Age at first marriage is low (<15 years) for the northern groups (Hausa, Fulani, Kanuri) but high (>20 years) for some of the southeastern groups (Igbo, Urhobo), as well as the urbanized Yoruba. Premarital fertility is low (<5 percent) for the Fulani and Kanuri and high (>20 percent) for the Ibibio, Ijaw, Urhobo, and Ogoni. Similarly, premarital intercourse is rare among the Fulani, Kanuri, and Hausa, but common (>50 percent) among many of the southeastern groups as well as among the Yoruba.

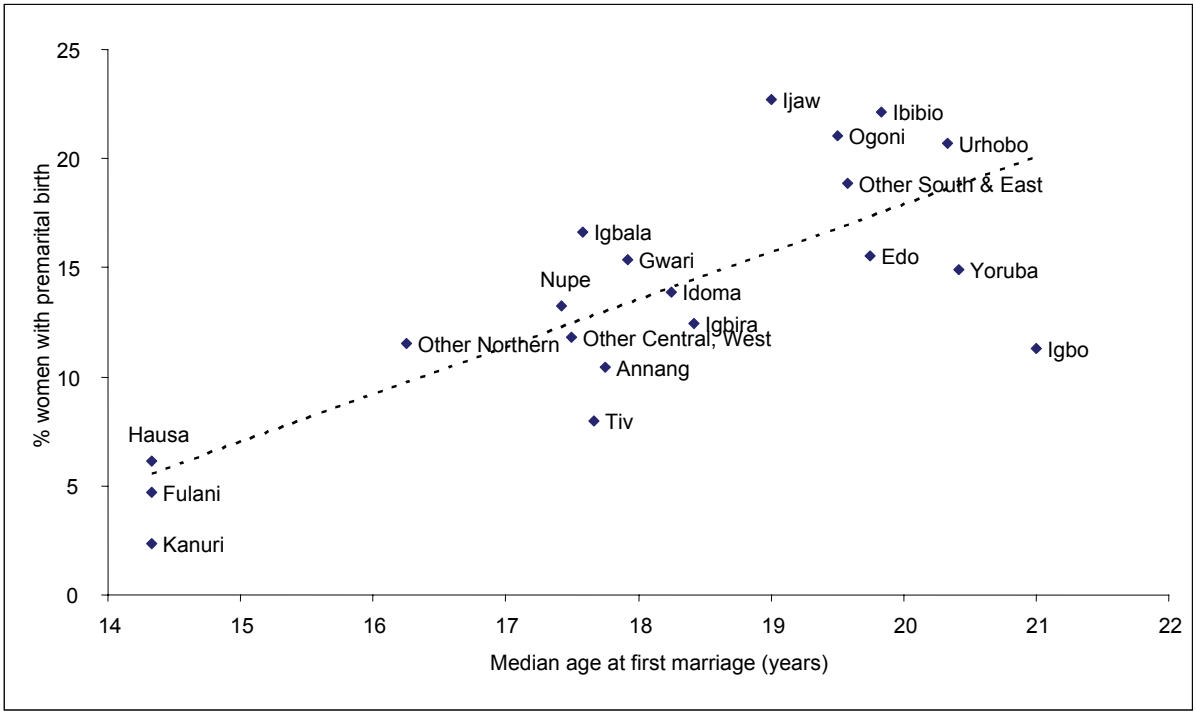
Correlation with age at first marriage was relatively high (ρ = 0.762), as can be seen in Figure 1. The differentials show the main divisions in the country: a cluster of three northern groups with low age at first marriage and low level of premarital fertility (Hausa, Fulani, Kanuri); a second cluster of groups in central and southwest Nigeria with medium age at first marriage and level of premarital fertility; and a third cluster of groups primarily in southern and eastern Nigeria with high age at first marriage and level of premarital fertility. There are some exceptions to this overall pattern. The Yoruba live in the central and western parts of the country, but are included in the third cluster because they are more urbanized. The Annang are located in the southern region, but belong to the second cluster. The "other northern groups" also belong to the second cluster; they are primarily ethnic groups located in the southern parts of the northern provinces, and are close to the north-central groups.

Table 3 Premarital fertility and nuptiality indicators, Nigeria

Ethnolinguistic group	Number of women surveyed	Percent urban	Median age at first marriage (years)	Percent age 40-49 never married	Percent premarital births	Percent women with premarital birth	Percent premarital intercourse
Hausa	3,623	26.0	14.3	0.2	2.4	6.1	4.8
Fulani	912	15.5	14.3	0.8	1.8	4.7	3.4
Kanuri	253	32.8	14.3	0.0	0.9	2.4	3.0
Other Northern	1,321	23.3	16.3	0.0	4.8	11.5	17.9
Yoruba	2,914	61.0	20.4	0.2	6.2	14.9	55.0
Tiv	340	19.4	17.7	0.0	3.5	8.0	29.3
Nupe	180	34.3	17.4	0.0	4.1	13.3	13.0
Igbala/Igala	364	18.4	17.6	0.0	9.3	16.6	46.5
Idoma	260	19.8	18.3	2.9	6.0	13.9	32.1
Ibira/Igbirra	260	60.4	18.4	0.0	5.4	12.5	37.7
Gwari	136	13.3	17.9	0.0	7.4	15.4	18.3
Other Central, West	405	16.2	17.5	2.0	7.4	11.8	21.1
Igbo/Ibo	2,946	38.0	21.0	2.9	4.5	11.3	50.7
Ibibio	599	19.8	19.8	6.2	7.8	22.1	62.1
Ijaw	239	19.4	19.0	1.9	8.7	22.7	60.5
Edo	296	48.0	19.8	0.0	5.3	15.5	56.1
Annang	223	3.1	17.8	0.0	4.7	10.4	56.8
Urhobo	158	59.5	20.3	0.0	8.7	20.7	61.8
Ogoni/Ogori	158	0.0	19.5	4.6	9.8	21.0	61.8
Other South, East	176	23.6	19.6	0.0	8.4	18.9	68.0
Other and unknown	1,667	27.1	17.7	1.1	5.8	14.4	35.5
Total	17,430	32.4	17.8	1.0	4.5	11.0	31.2

Source: Authors' calculations after merging data from 1999 and 2003 DHS surveys.

Figure 1 Correlation between premarital fertility and age at first marriage, Nigeria



RWANDA

Rwanda is a special case in this analysis because ethnicity is linked more to social status than to geographical area or culture. Like Burundi, Rwanda is a small country and more homogeneous ethnically than other African countries. Three ethnic groups are usually distinguished in Rwanda: Hutu, Tutsi, and Twa. The first two groups account for 99 percent of the population, while the Twa is a small minority of aborigines (pygmies), most of whom live in the northwestern forests. Both Hutu and Tutsi speak the same language (kinyarwanda), share the same culture, and live in the same areas, although the proportion of Tutsis tends to be lower in the northern part of the country. The early history of relationships between the Hutu and Tutsi is complex and well documented. They were further complicated by political events around the time of independence (1960), subsequent struggles for power, and civil war and genocide in 1994. Despite these events, Rwanda was kept in this analysis because it shows an interesting pattern.

Rwanda conducted one WFS survey in 1983 and two DHS surveys, in 1992 and 2000 (Table 1). The first two surveys covered the three ethnic groups and a tiny fraction of other and unknown ethnic groups. After 1994, ethnicity became a politically sensitive subject in Rwanda, and it was not examined in the 2000 DHS survey. For this reason, we relied on the first two surveys for this analysis.

Table 1 Sample size and main characteristics of surveys, Rwanda

Rwanda	WFS 1983	DHS 1992	DHS 2000
No. of women interviewed	5,738	6,551	10,421
No. of ethnic categories, African	3	3	na
Percent other and unknown	0.5	0.3	0.5

na = Not applicable

The two surveys were compatible with respect to the distribution of ethnic groups and could be combined, although fewer Tutsis were present in the second survey. The second survey also showed higher levels of premarital fertility for both Tutsis and Hutus, indicating an increasing trend over time. However, the pattern of differences with respect to premarital fertility was the same in the two surveys.

Table 2 Distribution of ethnic groups by survey, Rwanda

Origin	Ethnolinguistic group	WFS 1983	DHS 1992	P-value	Significance
African	Hutu	86.4	90.7	0.000	*
	Tutsi	12.6	8.7	0.000	*
	Twa	0.5	0.4	0.284	
	Other and unknown	0.5	0.3	0.070	
	Total	100.0	100.0		

*p <0.05

Premarital Fertility by Ethnicity

Results for the Twa should be interpreted with caution because they are based on only 48 women, show no cases of premarital birth, and have wide confidence intervals (Table 3). However, the premarital fertility of the Twa was borderline significantly different from the other groups ($p = 0.054$), and they were kept separate because of their special ethnic identity and because they matched the overall pattern of relationship with age at marriage.

The two other groups were quite different. Compared with the Hutu, the Tutsi are more urbanized, have higher age at marriage, higher premarital fertility, and higher incidence of premarital intercourse. The Twa, who are almost entirely rural, had lower premarital fertility despite high rates of premarital intercourse. This pattern is primarily the result of lower age at marriage.

Table 3 Premarital fertility and nuptiality indicators, Rwanda

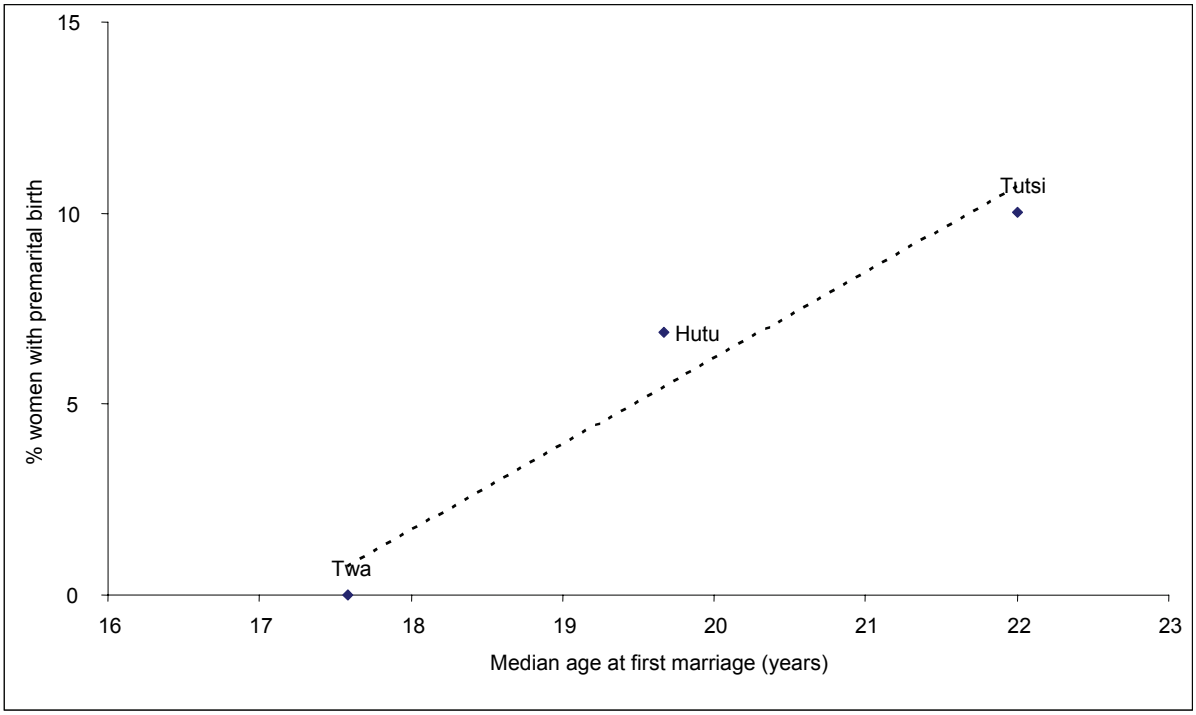
Ethnolinguistic group	Number of women surveyed	Percent urban	Median age at first marriage (years)	Percent age 40-49 never married	Percent premarital births	Percent women with premarital birth	Percent premarital intercourse
Hutu	10,750	5.4	19.7	0.6	2.2	6.9	17.4
Tutsi	1,416	14.5	22.0	1.3	3.2	10.0	23.2
Twa	48	3.0	17.6	0.0	0.0	0.0	30.2
Other and unknown	75	36.2	19.3	0.0	2.9	14.0	41.8
Total	12,289	6.2	19.9	0.6	2.2	7.1	18.0

Source: Authors' calculations after merging data from 1983 WFS and 1992 DHS surveys.

Correlations with age at marriage and urban residence are of little value because they are based on only three ethnic groups, one of which is very weak. However, the patterns resemble those seen in other countries (Figure 1).

An important feature of premarital fertility in Rwanda is its low prevalence (2.2 percent for all births, 7.1 percent for women) in conjunction with high age at first marriage (19.9 years). A similar pattern is seen in Burundi, with which Rwanda shares much of its social fabric. Despite minor differences relating to socioeconomic factors, and despite the special case of the Twa minority, Rwanda and Burundi have a unique pattern of premarital fertility in Central Africa.

Figure 1 Correlation between premarital fertility and age at first marriage, Rwanda



SENEGAL

Senegal conducted one WFS survey in 1978, and three DHS surveys, in 1986, 1993, and 1997 (Table 1). Another DHS survey was conducted in 1999 but the data were not available when this report was prepared. The first survey (WFS) included 18 specific ethnic groups, the second survey had only five groups, the third survey had seven groups, and the fourth survey had ten groups. The main groups were compatible, but many were missing in the second survey. The data in the first survey were considered somewhat out-of-date, and had a lower than average rate of premarital fertility. The second survey was limited in the number of ethnic groups, and had a higher than average rate of premarital fertility. Therefore, the last two surveys (1993 and 1997), which also had larger sample sizes, were used for the analysis.

Table 1 Sample size and main characteristics of surveys, Senegal

Senegal	WFS 1978	DHS 1986	DHS 1993	DHS 1997
No. of women interviewed	3,985	4,415	6,310	8,593
No. of ethnic categories, African	18	5	7	10
Percent other and unknown	7.5	10.1	3.5	4.5

The last two surveys were compatible with respect to the distribution of ethnic groups, were compatible with the other surveys, and could be matched (Table 2). However, the southern groups (Manjaak, Mancagne, and Balant) were not coded in the 1993 DHS survey, so information on these groups comes only from the 1997 survey. Because the sample sizes of the three groups were small and the groups had similar characteristics, they were merged in this analysis to form a separate ethnic category. This was done partly because the three groups had unusual characteristics.

Table 2 Distribution of ethnic groups by survey, Senegal

Ethnolinguistic group	WFS 1978	DHS 1986	DHS 1993	DHS 1997	Difference between 1993 and 1997 surveys: P-value	Difference between 1993 and 1997 surveys: Significance
Wolof/Lebou	42.7	42.1	42.5	41.0	0.063	
Poular	22.8	23.0	23.2	24.8	0.021	*
Serer	14.2	14.5	15.4	14.3	0.074	
Mandingue/Soce/Malinké	4.5	5.0	7.6	5.0	0.000	*
Diola	3.8	5.5	5.2	4.6	0.058	
Sarakole/Soninke	1.8		1.7	2.3	0.004	*
Bambara	1.5		0.9	1.8	0.000	*
Manjaak, Mancagne, Balante	1.0			1.7	na	na
Other and unknown	7.7	10.1	3.5	4.5	na	na
Total	100.0	100.0	100.0	100.0		

*p <0.05
na = Not applicable

Premarital Fertility by Ethnicity

Senegal has a moderate level of premarital fertility, with an average of 3.8 percent for all births and 11.1 percent for women. Median age at marriage is low (16.9 years), and the level of premarital intercourse is low by African standards (13.8 percent), except in the southern groups, where it is much higher (>44 percent).

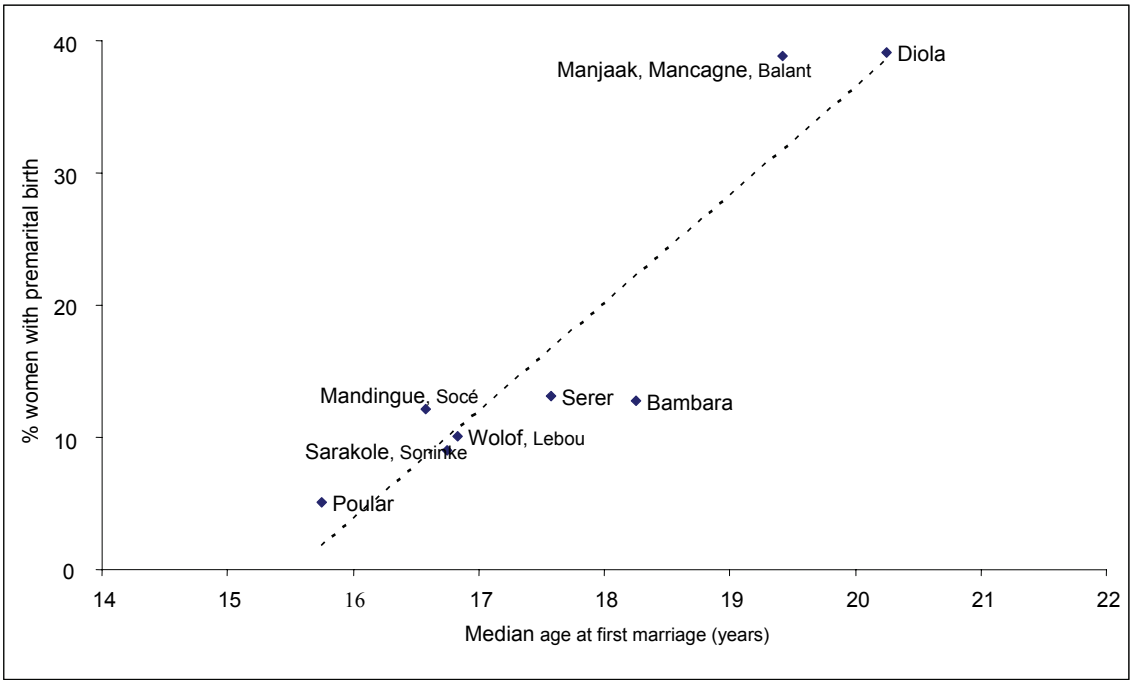
Table 3 Premarital fertility and nuptiality indicators, Senegal

Ethnolinguistic group	Number of women surveyed	Percent urban	Median age at first marriage (years)	Percent age 40-49 never married	Percent premarital births	Percent women with premarital birth	Percent premarital intercourse
Wolof/Lebou	5,931	48.6	16.8	0.3	3.3	10.1	10.6
Poular	3,475	34.8	15.8	0.5	1.6	5.1	6.6
Serer	2,388	34.6	17.6	0.1	4.0	13.1	17.2
Mandingue/Soce/Malinké	1,012	38.6	16.6	0.8	4.3	12.2	16.7
Diola	855	53.0	20.3	0.3	15.9	39.1	53.5
Sarakole/Soninke	279	38.4	16.8	0.0	3.7	9.0	10.5
Bambara	206	62.3	18.3	0.0	3.6	12.8	15.2
Manjaak, Mancagne, Balante	168	49.7	19.4	0.0	13.3	38.9	44.5
Other and unknown	589	57.3	17.0	0.0	4.4	12.1	17.8
Total	14,903	43.2	16.9	0.3	3.8	11.1	13.8

Source: Authors' calculations after merging data from 1993 and 1997 DHS surveys.

Differentials by ethnicity are large. Two groups, the Diola, and the Manjaak-Mancagne-Balant stand out as having high levels of premarital fertility (39.1 percent and 38.9 percent, respectively) and high age at marriage (20.3 years and 19.4 years, respectively) (Table 3). The two groups are located primarily in Casamance, in the southern part of the country, south of the Gambia and near Guinea Bissau (where the Manjaak-Mancagne-Balant originated). The behavior of these groups is quite different from that of the other groups in the country. At the other end of the spectrum are the Poular (Fulani), who, like their kin in various other West African countries, have a low age at marriage (15.8 years) and only a small proportion of the women have had a premarital birth (5.1 percent). Other groups are similar, with minor variations. The Wolof tend to have a low level of premarital fertility, despite being more urbanized, while the opposite is the case for the Serer. The small group of Bambara had lower levels than expected, given that they are the most urbanized group, and had higher age at marriage than the others. Even if statistically significant, the small differences between the five middle groups have little sociological implication, and the groups can be regarded as similar.

Figure 1 Correlation between premarital fertility and age at first marriage, Senegal



SOUTH AFRICA

South Africa conducted one DHS survey in 1998 and another in 2003-04. Data for the latter survey have not been released. Only the 1998 DHS survey was accessible when this study was conducted (Table 1). The 1998 DHS survey included four racial groups (V131) and the 11 official languages of the country, two of which are European languages (Afrikaans and English). The two types of information (race and language) were merged to form 13 comprehensive ethnolinguistic groups. Three of the groups identify the non-African population by race (White, Asian/Indian, Colored), while nine are ethnolinguistic groups in the black/African population. The sample was large enough to accommodate the 13 groups. Very few "other and unknown" groups were left over, despite there being a large number of foreigners living in South Africa. However, some of these would be included in the various ethnic groups (for example, the Shangaan/Tsonga from Mozambique, and the Southern Sotho from Lesotho).

Table 1 Sample size and main characteristics of DHS survey, South Africa

South Africa	DHS 1998
No. of women interviewed	11,735
No. of ethnic categories, African	9
Racial groups	4
Percent other and unknown	0.2

The survey is compatible with respect to the distribution of ethnic groups from other sources (Table 2).

Table 2 Distribution of ethnic groups in survey, South Africa

South Africa	Ethnolinguistic and racial group	DHS 1998
Others	White	7.8
	Asian/Indian	3.5
	Coloured	10.2
Black/African	Speaking European languages	1.9
	Xhosa	15.2
	Zulu	25.0
	Sotho	8.6
	Tswana	11.0
	Pedi	9.3
	Swazi	2.0
	Venda	1.7
	Tsonga	2.7
	Ndebele	0.9
	Other and unknown	0.2
	Total	100.0

Premarital Fertility by Ethnicity

Premarital fertility is high in South Africa, with an average of 38.9 percent for all births and 59.1 percent for women. The median age at marriage is high (24.7 years) and the prevalence of premarital intercourse is high (81.4 percent).

Table 3 Premarital fertility and nuptiality indicators, South Africa

Ethnolinguistic group	Number of women surveyed	Percent urban	Median age at first marriage (years)	Percent age 40-49 never married	Percent premarital births	Percent women with premarital birth	Percent premarital intercourse
White	755	86.7	21.3	0.6	3.2	5.2	50.4
Asian/Indian	393	98.2	21.1	6.3	7.6	11.9	30.9
Coloured	1,533	82.4	25.0	11.2	44.6	66.6	83.5
Black, speaking European languages	257	66.9	28.3	28.9	42.5	70.6	88.4
Xhosa	2,693	53.4	24.6	18.3	38.6	62.7	86.0
Zulu	2,147	55.8	27.1	18.5	49.6	72.9	90.2
Sotho	951	80.4	23.2	8.6	35.0	58.6	85.3
Tswana	1,200	61.6	26.8	16.8	52.7	74.3	90.6
Pedi	910	33.6	23.1	14.6	37.2	58.1	78.7
Swazi	333	29.3	20.9	14.8	31.9	54.9	82.1
Venda	169	10.8	19.8	0.0	16.7	38.6	63.9
Tsonga	269	16.4	19.8	3.0	23.1	41.9	65.6
Ndebele	125	46.5	26.7	12.0	42.3	73.2	89.6
Total	11,735	60.5	24.7	13.2	38.9	59.1	81.4

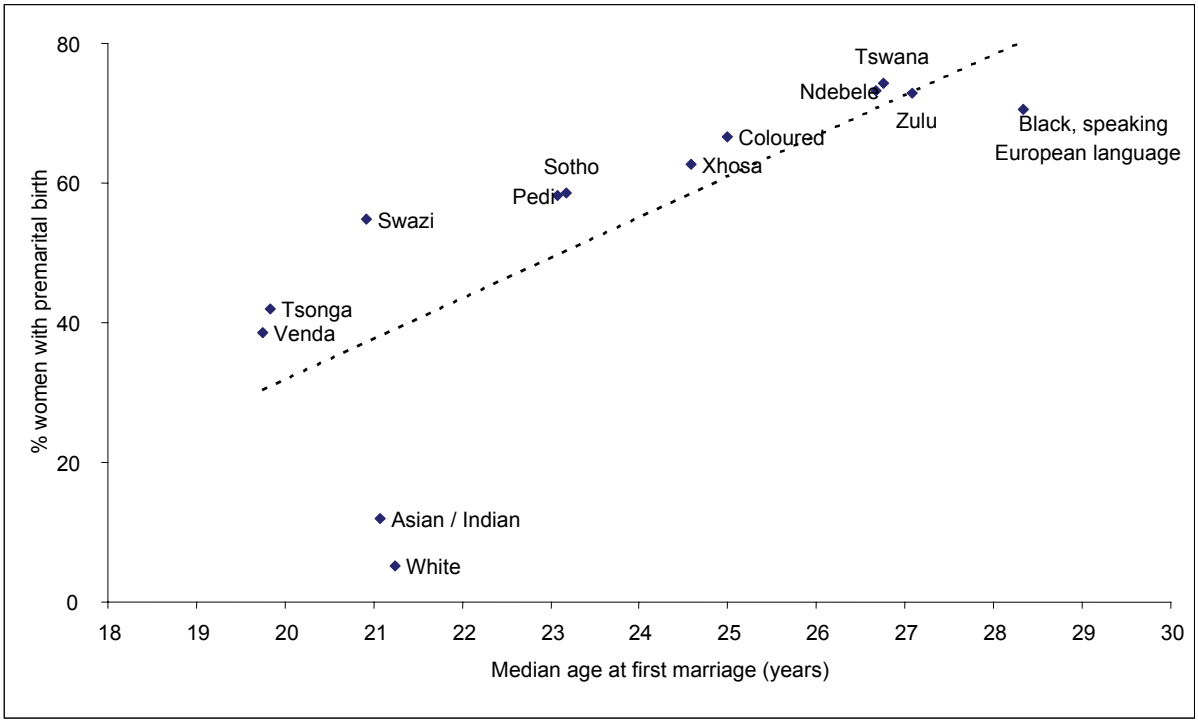
Source: Authors' calculations from 1998 DHS survey.

Differentials by ethnicity are large. Racial groups stand out as significant, with White and Asian populations having much lower premarital fertility (5.2 percent and 11.9 percent, respectively), despite high median age at marriage (21.3 and 21.1 years, respectively) and high urban residence (86.7 percent and 98.2 percent, respectively). At the other end of the spectrum, the Colored (mixed race)[1] population shows high premarital fertility (66.6 percent), high age at marriage (25.0 years), and higher than average urban residence (82.4 percent). Among the African groups, the differentials were wide as well. The Tsonga and Venda have lower age at marriage (19.8 years each) and lower than average premarital fertility (38.6 percent and 41.9 percent, respectively). The Swazi, Pedi, Sotho, and Xhosa are located on the age at marriage/premarital fertility axis somewhat above the regression line linking all the groups (Figure 1). The groups with the highest levels of premarital fertility are also the groups with the highest age at first marriage: Ndebele, Tswana, and Zulu.

Correlation with age at marriage was high and positive (ρ = 0.758), but correlation with urban residence was curvilinear, with maximum values in the medium range (40 to 60 percent) for the Ndebele Zulu, Xhosa, and Tswana, and lower values for more rural groups (Venda, Tsonga, Pedi, Swazi) and other racial groups, which are primarily urban residents (White, Asian).

[1] The Colored (mixed) population of South Africa came into existence during the early period of European (Dutch) contact with the indigenous population, primarily Khoisan-speaking hunters and gatherers (Bushmen and Hottentots). The descendants of this population are physiologically and culturally different from the descendants of the African farming populations that moved into the area.

Figure 1 Correlation between premarital fertility and age at first marriage, South Africa



TANZANIA

Tanzania conducted three DHS surveys, in 1991, 1996, and 1999, plus two KAP-HS surveys in 1994 and 2003. The 1994 survey did not have maternity histories, and the 1999 and 2003 surveys did not provide information on ethnicity (Table 1). The 1991 DHS survey included 126 ethnic groups (S114), while the 1996 DHS survey included 112 ethnic groups (S117), with basically the same coding. The two surveys selected for this analysis (1991 and 1996) had large sample sizes that allowed for in-depth analysis of ethnicity.

Table 1 Sample size and main characteristics of DHS surveys, Tanzania

Tanzania	DHS 1991	KAP-HS 1994	DHS 1996	DHS 1999
No. of women interviewed	9,238	4,225	8,120	4,029
No. of ethnic categories, African	126	100	112	na
Percent other and unknown	3.7	5.9	6.7	

na = Not applicable

Tanzania has a large number of small ethnic groups that are well-documented in the 1991 and 1996 DHS surveys. The two surveys are compatible and, after combining the data, all ethnic groups with at least 200 women interviewed were kept for final analysis. This resulted in 29 groups, plus a residual category of "other and unknown" (Table 2). Although the two surveys are largely compatible, some statistically significant minor differences were found. These have no importance for this study. The only large group in Tanzania is the Sukuma, which accounts for one-sixth of the population. The other groups are much smaller but have sufficient women interviewed for statistical inference.

Table 2 Distribution of ethnic groups by survey, Tanzania

Ethnolinguistic group	DHS 1991	DHS 1996	P value	Significance
Sukuma	15.6	15.1	0.416	
Ha	4.3	4.5	0.561	
Makonde	3.5	3.8	0.185	
Chagga	4.7	3.6	0.000	*
Gogo	5.2	2.7	0.000	*
Zigua	1.8	3.6	0.000	*
Nyamwezi	2.7	2.2	0.039	*
Fipa	1.6	1.8	0.221	
Bena	2.9	2.5	0.172	
Shirazi	1.5	0.6	0.000	*
Iramba	1.8	2.1	0.142	
Ngoni	2.0	1.8	0.295	
Zaramo	1.5	1.7	0.197	
Hehe	1.6	2.7	0.000	*
Pare	2.4	2.2	0.291	
Nyakyusa	2.2	2.9	0.006	*
Luguru	1.7	2.0	0.233	
Haya	3.1	2.1	0.000	*
Sambaa	1.7	2.0	0.161	
Jita	1.9	1.3	0.001	*
Iragw	3.2	2.2	0.000	*
Makua	1.1	1.2	0.477	
Simbiti	2.7	0.2	0.000	*
Zanaki	1.7	0.5	0.000	*

Continued...

Table 2—*Continued*

Ethnolinguistic group	DHS 1991	DHS 1996	P value	Signifi-cance
Pogoro	1.4	1.2	0.104	
Ndengereko	0.9	1.2	0.059	
Kaguru	1.9	1.0	0.000	*
Mwera	1.4	1.4	0.771	
Masai	1.2	2.4	0.000	*
Other and unknown	20.8	27.5	0.000	*
Total	100.0	100.0		

*p <0.05

Premarital Fertility by Ethnicity

Premarital fertility is moderately high in Tanzania, with an average of 8.2 percent for all births and 20.0 percent for women. Age at marriage is medium (17.9 years), and the prevalence of premarital intercourse is high (57.1 percent).

One of the most interesting aspects of premarital fertility in Tanzania is the wide diversity observed, along with low correlation with age at marriage (ρ = 0.462) and urban residence (ρ = 0.346). The low correlation with age at marriage can be seen in Figure 1, where the 29 groups have a link with age at marriage, but are spread widely around it.

Table 3 Premarital fertility and nuptiality indicators, Tanzania

Ethnolinguistic group	Number of women surveyed	Percent urban	Median age at first marriage (years)	Percent age 40-49 never married	Percent premarital births	Percent women with premarital birth	Percent premarital intercourse
Sukuma	2,033	7.8	17.7	0.0	6.4	16.6	54.3
Ha	823	19.6	17.5	0.0	2.5	6.8	17.7
Makonde	693	27.4	17.2	0.0	5.6	11.0	47.1
Chagga	628	35.5	21.0	2.2	8.8	23.7	49.9
Gogo	543	19.3	18.1	0.0	6.8	19.0	56.7
Zigua	475	29.8	17.3	1.2	6.3	16.4	45.4
Nyamwezi	474	25.3	17.5	0.0	8.9	22.8	55.5
Fipa	444	18.4	17.6	0.7	6.9	18.9	39.5
Bena	389	21.8	19.7	2.7	10.3	26.0	50.4
Shirazi	379	28.5	15.7	0.0	1.7	3.8	2.6
Iramba	361	14.1	18.9	0.0	15.0	40.7	66.7
Ngoni	347	38.4	18.0	0.0	13.1	33.6	62.0
Zaramo	340	32.6	17.2	0.0	11.6	25.1	46.4
Hehe	327	27.9	18.7	1.9	10.0	25.4	50.7
Pare	320	28.0	19.8	5.3	16.7	38.8	62.3
Nyakyusa	312	41.2	17.6	2.0	8.6	17.7	32.2
Luguru	296	46.8	17.7	2.5	12.8	26.2	47.6
Haya	292	14.3	17.9	0.0	3.8	8.8	24.5
Sambaa	287	31.6	18.8	0.0	6.7	18.2	37.8
Jita	280	35.1	17.9	0.0	8.3	27.2	63.9
Iragw	276	35.0	19.8	0.0	11.0	23.7	59.9
Makua	271	16.0	17.3	2.3	10.1	24.2	64.2

Continued…

Table 3—*Continued*

Ethnolinguistic group	Number of women surveyed	Percent urban	Median age at first marriage (years)	Percent age 40-49 never married	Percent premarital births	Percent women with premarital birth	Percent premarital intercourse
Simbiti	262	53.6	17.3	0.0	8.5	21.8	46.4
Zanaki	236	19.7	17.3	0.0	11.0	27.9	56.1
Pogoro	235	36.7	16.8	0.0	10.6	27.7	48.5
Ndengereko	225	65.8	17.7	0.0	14.1	26.8	51.3
Kaguru	220	26.2	19.2	4.0	15.6	35.7	64.6
Mwera	375	24.8	17.3	2.0	9.4	22.1	58.6
Masai	209	0.3	16.3	0.0	5.4	10.8	46.3
Other and unknown	5,006	24.9	17.7	1.1	8.3	19.4	41.3
Total	17,358	24.2	17.9	0.9	8.2	20.0	47.1

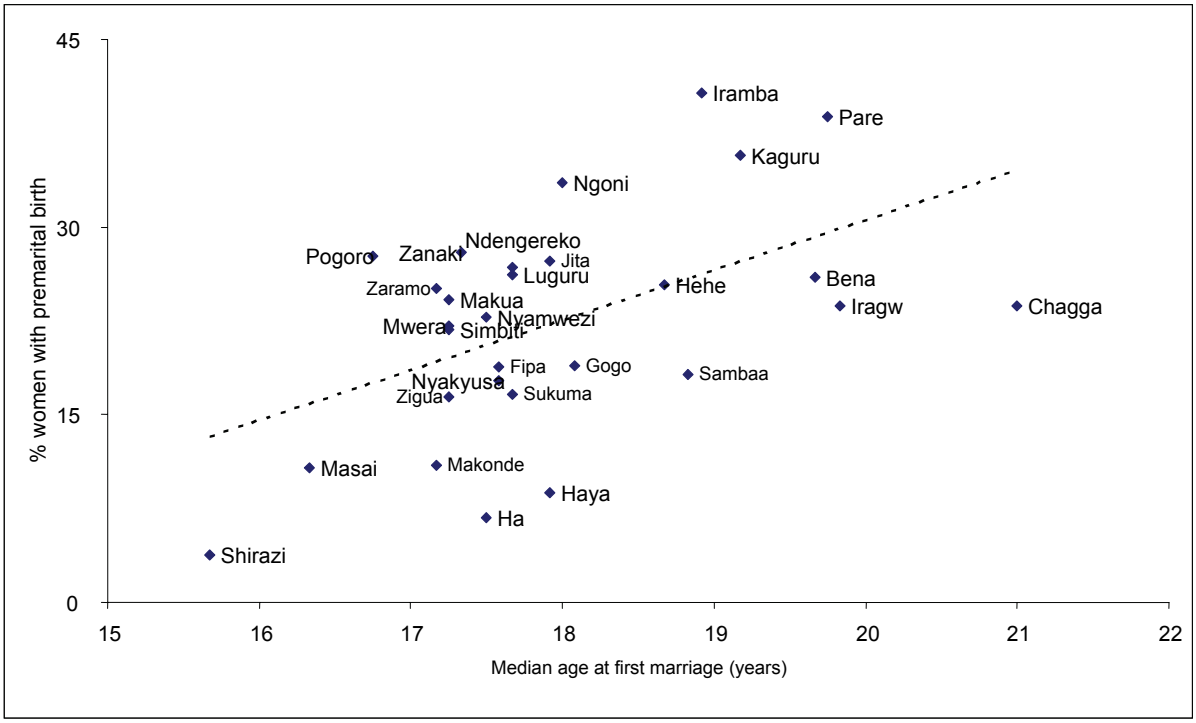
Source: Authors' calculations after merging data from 1991 and 1996 DHS survey.

Differentials by ethnicity are large in Tanzania. Premarital childbearing among women ranges from 3.8 percent (Shirazi) to 40.7 percent (Iramba). Similar differences are seen for prevalence of premarital intercourse (2.6 to 66.7 percent, respectively). Age at first marriage varies widely from 15.7 years (Shirazi) to 21 years (Chagga). The Shirazi, who live on the islands of Zanzibar and Pemba, are culturally conservative despite an above-average level of urban residence (28.5 percent). The Shirazi are Muslim and their history is quite different from that of most other ethnic groups on the continent.

There is no clear geographical pattern for premarital fertility. Groups with low levels of premarital childbearing were found on the islands (Shirazi), in the northwest (Ha, Haya), in the northeast (Masai), and in the southeast (Makonde). Groups with high levels of premarital childbearing were found primarily in the central part of the country (Ngoni, Kaguru, Iramba), but also in the North (Pare) and on the coast (Ndengereko). Groups with middle levels of premarital childbearing were found all over the country.

There is wide variation in residence among ethnic groups in Tanzania, with the Masai living almost entirely in rural areas (0.3 percent urban), and other groups living primarily in urban areas (Ndengereko, Simbiti). Among groups with average levels of urban residence (20 to 30 percent), premarital fertility is very low for some (Ha, Shirazi) and very high for others (Pare, Kaguru). The Ndengereko and Zanaki have similar levels of premarital fertility, but urban residence is high among the Ndengereko and low among the Zanaki (65.8 and 19.7 percent, respectively).

Figure 1 Correlation between premarital fertility and age at first marriage, Tanzania



TOGO

Togo conducted two DHS surveys, in 1988 and 1998 (Table 1). The 1988 DHS included 34 ethnic groups (RC110), and three main ethnic categories (V131). The 1998 DHS included five main categories (V131), with similar coding but no details on ethnicity.

Table 1 Sample size and main characteristics of DHS surveys, Togo

Togo	DHS 1988	DHS 1998
No. of women interviewed	3,360	8,569
No. of ethnic groups, African	34	na
No. of ethnic categories	3	5
Percent other and unknown	9.1	7.9

To merge the two data sets, the two additional main categories present in the 1998 survey were added to the three main categories in the 1988 survey by recoding data from the detailed 1988 ethnic categories. Once the recoding was done, the two surveys were compatible, and the five categories were retained for the final analysis (Table 2). The two surveys showed minor differences, some statistically significant, however, these differences were of no importance to the study. It should be noted that for the 1988 sample, the ethnic categories include from 4 to 10 groups, which reduces the specificity of the analysis.

Table 2 Distribution of ethnic groups by survey, Togo

Ethnolinguistic group	DHS 1988	DHS 1998	P-value	Signifi-cance
Adja-Ewe	47.6	44.2	0.001	*
Akposso, Akebou	4.1	4.2	0.906	
Ana-Ife	1.6	3.2	0.000	*
Kabye-Tem	21.0	25.9	0.000	*
Para-Gourma, Akan	22.2	14.6	0.000	*
Other and unknown	3.4	7.9	0.000	*
Total	100.0	100.0		

*p <0.05

Premarital Fertility by Ethnicity

Premarital fertility is moderately high in Togo, with an average of 5.6 percent for all births and 16.3 percent for women. The prevalence of premarital intercourse is high (63.6 percent), although median age at marriage remains at a medium level (18.6 years).

Level of premarital fertility is generally homogenous across the population, with little variation among ethnic groups (from 13.7 percent among the Para-Gourma to 14.4 percent among the Akposso-Akebou).

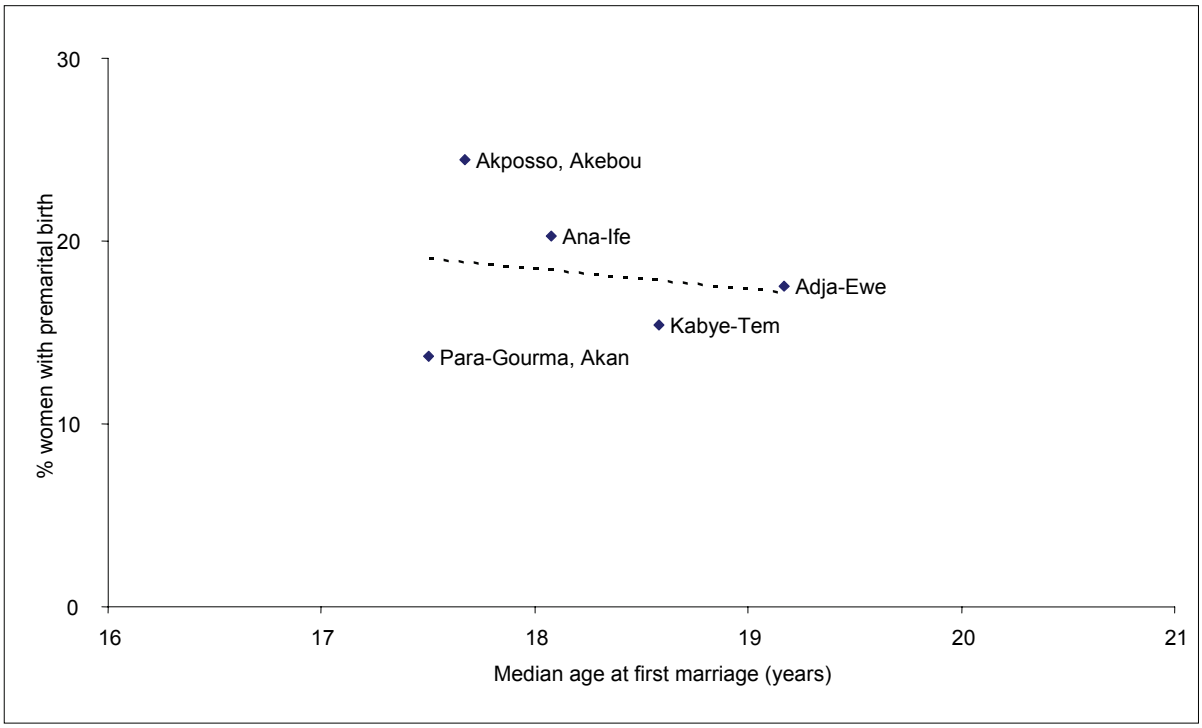
Correlations of premarital fertility with age at marriage (ρ = -0.181) and urban residence (ρ = -0.244) were small and negative. The low correlation with age at marriage is illustrated in Figure 1, where the five ethnic groups show basically no association with age at marriage.

Table 3 Premarital fertility and nuptiality indicators, Togo

Ethnolinguistic group	Number of women surveyed	Percent urban	Median age at first marriage (years)	Percent age 40-49 never married	Percent premarital births	Percent women with premarital births	Percent premarital intercourse
Adja-Ewe	4,293	43.1	19.2	0.6	6.3	17.5	70.0
Akposso, Akebou	444	21.6	17.7	0.0	8.2	24.4	70.2
Ana-Ife	286	38.6	18.1	1.4	5.8	20.3	64.8
Kabye-Tem	3,320	33.6	18.6	0.0	5.6	15.4	57.5
Para-Gourma, Akan	2,768	26.2	17.5	0.1	4.3	13.7	58.0
Other and unknown	818	42.2	18.1	0.0	4.1	11.3	53.5
Total	11,929	36.9	18.6	0.3	5.6	16.3	63.6

Source: Authors' calculations after merging data from 1988 and 1998 DHS surveys.

Figure 1 Correlation between premarital fertility and age at first marriage, Togo



UGANDA

Uganda conducted three DHS surveys, in 1988, 1995, and 2001 (Table 1). The 1988 DHS survey included 18 ethnic groups (V131); the 1995 DHS survey included 33 groups (V131) plus the language spoken by the respondent (SLANGRE); and the 2001 survey included only information on the language spoken in the cluster (SH053). The labels of ethnic groups were not provided in the code books for the first two surveys so, for this analysis, we relied on language spoken in the last two surveys.

Table 1 Sample size and main characteristics of DHS surveys, Uganda

Uganda	DHS 1988	DHS 1995	DHS 2001
No. of women interviewed	4,730	7,070	7,246
No. of ethnic groups, African	18	33	na
No. of languages spoken, African		6	6
Percent other and unknown	14.8	1.9	

Note: Ethnic group labels were not provided in the 1988 and 1995 surveys.

Fortunately, the last two surveys were compatible with respect to language spoken, and could be merged (Table 2).

Table 2 Distribution of ethnic groups by survey, Uganda

Ethnolinguistic group	DHS 1988	DHS 1998	P value	Signifi-cance
Ateso-Karamojong	6.8	7.8	0.028	*
Luganda	18.1	24.8	0.000	*
Lugbara	7.5	7.3	0.722	
Luo	12.6	9.7	0.000	*
Runyankole-Rukiga	19.2	16.8	0.000	*
Runyoro-Rutoro	6.5	5.2	0.000	*
Other and unknown	29.3	28.4	0.236	
Total	100.0	100.0		

*p <0.05

Premarital Fertility by Ethnicity

Premarital fertility is moderately high in Uganda, with an average of 6.2 percent for all births and 17.5 percent for women. The prevalence of premarital intercourse is high (46.8 percent), although median age at marriage remains at a medium level (17.6 years).

The prevalence of premarital fertility varies by ethnicity in Uganda, with levels ranging from 11.0 percent among the Runyankole-Rukiga to 32.7 percent among the Runyoro-Rutoro. The distribution of levels of premarital fertility is not continuous: four groups have rather low prevalence rates (Ateso-Karamojong, Lugbara, Luo,Runyangole-Rukiga), and two groups have rather high prevalence rates (Luganda,Runyoro-Rutoro).

The correlation of premarital fertility with age at marriage was negligible (ρ = -0.099) while the correlation with urban residence was average (ρ = -0.543). The low correlation with age at marriage is shown in Figure 1, where the six groups have basically no link with age at marriage.

Table 3 Premarital fertility and nuptiality indicators, Uganda

Ethnolinguistic group	Number of women surveyed	Percent urban	Median age at first marriage (years)	Percent age 40-49 never married	Percent premarital births	Percent women with premarital birth	Percent premarital intercourse
Ateso-Karamojong	925	10.5	17.7	0.0	5.4	15.7	50.8
Luganda	3,466	38.0	18.1	1.2	10.7	27.9	59.2
Lugbara	852	9.6	17.7	0.0	4.9	11.9	26.2
Luo	1,388	8.7	16.9	1.8	4.4	12.1	44.7
Runyankole-Rukiga	2,594	7.9	18.1	0.6	3.7	11.0	33.1
Runyoro-Rutoro	821	10.7	17.4	0.0	11.7	32.7	57.8
Other and unknown	4,270	10.8	17.2	0.3	4.7	15.3	48.6
Total	14,316	15.8	17.6	0.7	6.2	17.5	46.8

Source: Authors' calculations after merging data from 1988 and 1998 DHS surveys

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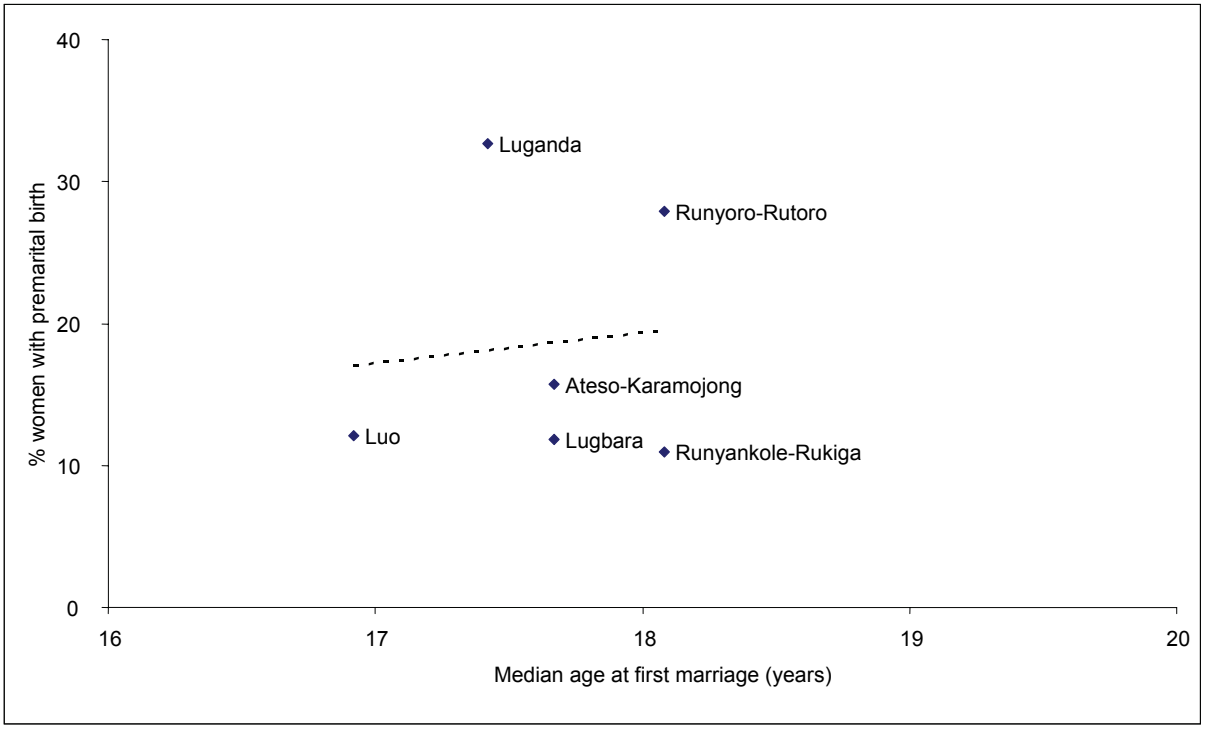
Figure 1 Correlation between premarital fertility and age at first marriage, Uganda



ZAMBIA

Zambia conducted three DHS surveys, in 1992, 1996, and 2001 (Table 1). All three had detailed information on ethnicity, and all three used the same coding. Merging the data was straightforward.

Table 1 Sample size and main characteristics of DHS surveys, Zambia

Zambia	DHS 1992	DHS 1996	DHS 2001
No. of women interviewed	7,060	8,021	7,658
No. of ethnic groups, African	58	50	50
No. of ethnic categories	7		
Percent other and unknown	2.6	2.7	2.7

Additionally, the three surveys were found to be compatible with respect to ethnicity, which, given the large number of groups, is unusual. After the data were merged, only groups with more than 250 women were retained for the final analysis (Table 2).

Table 2 Distribution of ethnic groups by survey, Zambia

Ethnolinguistic group	DHS 1992	DHS 1996	DHS 2001	Signifi-cance
Bemba	18.8	22.6	20.4	*
Tonga	14.4	10.9	11.6	*
Chewa	6.8	8.1	6.4	*
Lozi	5.1	6.0	6.3	*
Nsenga	5.8	5.9	5.0	*
Tumbuka	4.3	4.6	4.3	
Ngoni	4.1	3.4	4.0	*
Lala	3.8	2.8	2.6	*
Kaonde subgroup	2.7	2.4	2.9	
Mambwe	2.6	2.4	2.8	
Namwanga	2.0	2.6	2.9	*
Ushi	1.8	2.6	2.7	*
Lamba	2.1	2.1	2.2	
Luvale	1.9	2.2	2.2	
Lunda	3.5	2.5	3.7	*
Mbunda	1.5	1.7	2.5	*
Bisa	1.9	1.2	1.8	*
Lenje	1.7	1.7	1.3	
Other and unknown	15.3	14.1	14.3	*
Total	100.0	100.0	100.0	

*p <0.05

Premarital Fertility by Ethnicity

Premarital fertility is moderately high in Zambia, with an average of 7.1 percent for all births and 20.0 percent for women. The prevalence of premarital intercourse is high (49.9 percent), although median age at marriage remains at a medium level (17.6 years).

Differentials in premarital fertility by ethnicity are wide in Zambia, varying from 11.8 percent among the Mambwe in the North, to 46.3 percent among the Mbunda in the southwest (Table 3).

Table 3 Premarital fertility and nuptiality indicators, Zambia

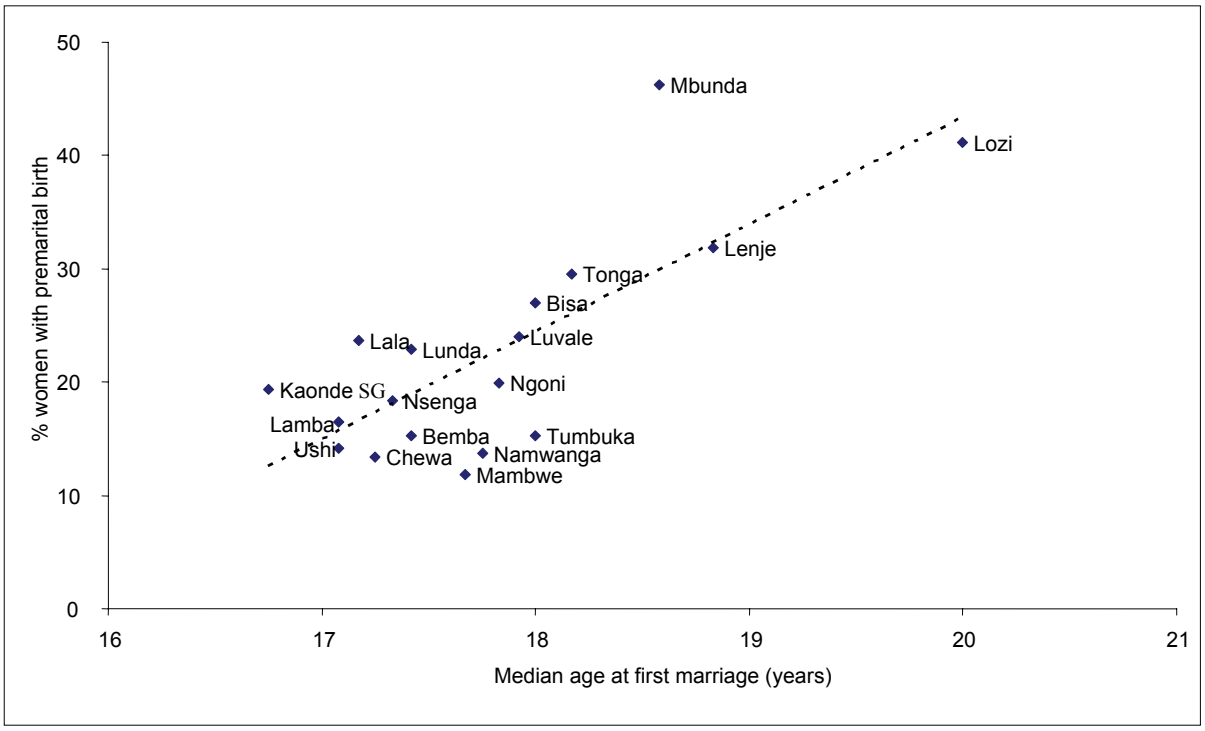
Ethnolinguistic group	Number of women surveyed	Percent urban	Median age at first marriage (years)	Percent age 40-49 never married	Percent premarital births	Percent women with premarital birth	Percent premarital intercourse
Bemba	5,445	59.3	17.4	0.6	5.2	15.3	43.7
Tonga	1,723	28.1	18.2	0.0	10.4	29.5	58.7
Chewa	1,077	30.8	17.3	1.1	4.6	13.4	39.1
Lozi	1,032	45.3	20.0	2.2	18.1	41.2	74.4
Nsenga	779	49.9	17.3	0.8	6.8	18.4	46.0
Tumbuka	624	52.4	18.0	0.0	4.7	15.2	42.3
Ngoni	530	50.8	17.8	1.7	6.8	19.9	48.1
Lala	1,292	49.5	17.2	0.5	8.7	23.7	55.1
Kaonde subgroup	603	43.4	16.8	0.0	6.7	19.3	55.4
Mambwe	368	45.4	17.7	0.0	4.1	11.8	41.3
Namwanga	381	53.5	17.8	0.0	5.0	13.7	41.8
Ushi	1,540	49.9	17.1	0.0	4.6	14.2	42.8
Lamba	417	50.4	17.1	0.0	5.5	16.5	41.8
Luvale	472	38.1	17.9	1.4	10.7	24.1	65.7
Lunda	1,916	31.6	17.4	0.0	7.8	22.9	59.1
Mbunda	401	7.1	18.6	1.4	19.5	46.3	78.1
Bisa	794	40.9	18.0	0.0	9.6	27.0	56.0
Lenje	256	48.7	18.8	4.4	12.6	31.8	70.7
Other and unknown	3,089	38.3	17.5	0.5	6.0	17.7	46.8
Total	22,739	45.4	17.6	0.5	7.1	20.0	49.9

Source: Authors' calculations after merging data from 1992, 1996, and 2001 DHS surveys.

Correlation of premarital fertility with age at marriage is high (ρ = +0.754) and groups are spread along the age at marriage axis from about 17 years (Ushi, Lamba, Kaonde) to 20 years (Lozi) (Figure 1).

Surprisingly, for a country that is relatively urbanized (45.4 percent) and industrialized (because of the copper mines), the correlation of premarital fertility with urban residence is strongly negative (ρ = -0.601). This finding is related to the heavy weight of southern groups that have low levels of urban residence and high levels of premarital fertility (Tonga, Mbunda) and northern groups that have high levels of urban residence and low levels of premarital fertility (Bemba, Tumbuka, Namwanga).

Figure 1 Correlation between premarital fertility and age at first marriage, Zambia



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The main objectives of the MEASURE DHS project are:

- To provide decisionmakers in survey countries with information useful for informed policy choices;
- To expand the international population and health database;
- To advance survey methodology; and
- To develop in participating countries the skills and resources necessary to conduct high-quality demographic and health surveys.

Additional information about the MEASURE DHS project is available on the Internet at http://www.measuredhs.com or by contacting Macro International Inc., MEASURE DHS, 11785 Beltsville Drive, Suite 300, Calverton, MD 20705 USA; Telephone: 301-572-0200, Fax: 301-572-0999, E-mail: reports@measuredhs.com.

DHS Comparative Reports No. 13

Premarital Fertility and Ethnicity in Africa

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In memory of Etienne van de Walle,
A pioneer in the study of
African nuptiality and fertility.

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Preface

One of the most significant contributions of the MEASURE DHS program is the creation of an internationally comparable body of data on the demographic and health characteristics of populations in developing countries. The DHS Comparative Reports series examines these data across countries in a comparative framework, and is primarily descriptive. The DHS Analytical Studies series focuses on technical analysis of specific topics. The principal objectives of both series are to provide information for policy formulation at the international level and to examine individual country results in an international context.

DHS Comparative Reports covers a variable number of countries, depending on the availability of datasets. Where possible, data from previous DHS surveys are used to evaluate trends over time. Each report provides detailed tables and graphs organized by region. Survey-related issues such as questionnaire comparability, survey procedures, data quality, and methodological approaches are addressed as needed.

The topics covered in the DHS Comparative Reports series are selected by MEASURE DHS staff in conjunction with the U.S. Agency for International Development. Some reports are updates of previously published reports.

It is anticipated that the availability of comparable information for a large number of developing countries will enhance the understanding of important issues in the field of international population and health by analysts and policymakers.

Martin Vaessen
Project Director

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Executive Summary

Premarital fertility, defined as giving birth before a woman's first marriage, is prevalent in sub-Saharan Africa. According to DHS data from surveys in 25 countries, an average of one in five women has a birth before marriage. The prevalence of premarital fertility varies markedly, ranging from 2.4 to 60.2 percent in the countries covered. The variation is even greater by ethnic group, ranging from 0.1 to 76.2 percent. The level of premarital fertility is determined by a number of factors including age at first marriage, age at first intercourse, contraceptive use, and various cultural factors; and all of these factors vary by ethnicity. An analysis of 263 ethnic groups shows that age at first marriage is by far the most important factor. Variables linked to modernization—urban residence, modern education, wealth, and Christianity—have positive correlations with premarital fertility, whereas living in a polygynous union and being Muslim have negative correlations. Even taking into account demographic and socioeconomic factors, variations in the level of premarital fertility are substantial, indicating the strong effect of cultural factors. The demographic evidence presented in this analysis is consistent with the ethnographic record, which distinguishes between societies that are culturally conservative and societies that are more open and permissive. The Appendix presents detailed information on premarital fertility by ethnicity for the countries in the study.

1 Introduction

Premarital fertility, defined as giving birth before a woman's first marriage, was of considerable interest to Europeans when they encountered African societies in the nineteenth and early twentieth centuries. Most Europeans came from cultures in which premarital sexual intercourse and premarital childbirth were highly stigmatized and repressed, and where marriage was strictly regulated, whether by civil law or by Christian religion. In Africa, they found a diversity of cultures that had very different world views about sexual intercourse and childbirth before marriage. Furthermore, marriage in Africa was guided by custom, with no equivalent to a marriage certificate. There was no official point in time before which intercourse or childbirth could be considered premarital. Marriage was a social process, an alliance between families or social groups. At the same time, marriage in African societies did follow clear rules, the rules were just different from those of European societies (Radcliffe-Brown and Forde, 1950; van de Walle, 1968). Observers of African cultures wrote extensively about premarital sexual relations and their relationship to marriage. For example, Grandidier (1913) described patterns of marriage and fertility at the turn of the twentieth century in Madagascar and presented numerous accounts of permissiveness toward premarital sexual behavior: some groups considered it normal for a woman to give birth before her first marriage. He further noted that permissiveness varied among ethnic groups, and also by social class. These patterns seem to have been resistant to change because, a century later, similar patterns were found in demographic survey data (Garenne and Zwang, 2005).

Ethnographers working in Africa in the first part of the twentieth century spent considerable time and effort describing patterns of marriage and sexual permissiveness. There does not appear to be any review or synthesis of this abundant literature with regard to premarital fertility. However, in his classic work, *Ethnographic Atlas*, Murdock (1967) uses a series of characteristics taken from ethnographic literature to describe attitudes toward premarital sexual intercourse in different ethnic groups. Attitudes were categorized, ranging from very permissive to very repressive: (F) premarital sexual relations freely permitted and subject to no sanctions; (A) premarital sexual relations allowed, not sanctioned unless pregnancy results; (P) premarital sexual relations prohibited, but weakly sanctioned; (T) trial marriage; promiscuous relations prohibited; (E) premarital sexual relations precluded by very early age at marriage for females; (V) insistence on virginity; premarital sexual relations prohibited.[1] In his synthesis, Murdock analyzed 277 ethnic groups from sub-Saharan Africa. Only 114 (41 percent) had information on norms of sexual behavior. A majority of these (53 percent) were categorized as "permissive" (groups A and F); a smaller number (15 percent) were considered "tolerant" (group P); and the remainder (34 percent) were seen as "restrictive" (groups E and V). Those in the restrictive category included cultures with very early age at marriage for females and those with strong sanctions on premarital sexual relations. This overview points up the ethnographic diversity found in sub-Saharan Africa, which accounts for the diverse patterns of premarital fertility that emerge from demographic surveys. This diversity contrasts markedly with North African and European populations, for whom permissiveness has traditionally been rare. In the same Ethnographic Atlas, only one group in North Africa—the Tamasheq Kel Antessar in Southern Sahara—and only one small group in central Europe, fall into the (F) category.

[1] While Murdock distinguished six categories of "norms of premarital sexual behavior," only five pertain to Africa: F, A, P, E, V.

The aim of this study is to examine the variations in levels of premarital fertility by ethnicity in sub-Saharan Africa. Much of the information on marriage, fertility, and ethnicity came from DHS datasets provided by the MEASURE DHS project. The main reason for emphasizing ethnicity stems from case studies conducted by the authors in South Africa, Namibia, and Madagascar. The research showed that ethnicity was the primary source of differential behavior in premarital fertility, and was much more important than socioeconomic factors such as urbanization, education, wealth, or religion (Garenne et al., 2000; Garenne and Zwang, 2004; Garenne and Zwang, 2005; Zwang, 2004). This study goes beyond a description of the differentials in premarital fertility by analyzing the relationship between premarital fertility and socioeconomic determinants such as urbanization, education, wealth, and religion. From this perspective, it is an extension of previous research on the determinants of age at marriage in sub-Saharan Africa (Garenne, 2004).

2 Data and Methods

2.1 Datasets

A11 World Fertility Surveys (WFS) and Demographic and Health Surveys (DHS) that were available in early 2005 were considered for this study. Surveys with samples based only on ever-married women and surveys without information on ethnicity were excluded. When several surveys were available for the same country, only those in which the coding of ethnicity was explicit and consistent were kept for final analysis. Information about the surveys kept for final analysis is shown by country in the Appendix, along with the reasons given for the choices. When several compatible surveys were selected in the same country, the computations regarding premarital fertility were made on the combined dataset. The main reason for combining datasets was to increase the sample size of ethnic groups in the country. Final results are provided at the country level only. The analysis covers 25 sub-Saharan countries, which accounts for a large proportion (about 75 percent) of the total population of the region.

2.2 Ethnicity in DHS Surveys

DHS surveys have been conducted in 32 African countries but several surveys did not include information on ethnicity. Also, while some surveys included information on ethnicity, they differed in the characterization of ethnic groups and in the level of detail provided. Some surveys (such as those in Zambia) included a comprehensive list of all of the ethnolinguistic groups while others (such as those in Senegal) included only a list of the largest groups, ignoring small minorities. Another group of surveys (such as those in Mali) included a short list of the main ethnic groups, and a large "other" category. In some cases, only large language families were provided (such as in Togo), and in a few surveys in Southern Africa, only race was included (such as in Zimbabwe).

Information on ethnicity in DHS surveys is usually provided by the V131 variable of the Individual Recode file, although it appears in the S-section of country-specific variables in some surveys. In one case (Uganda 2001), the information was contained in the Household Recode file as the language in each cluster. In this case we merged the cluster with the individual file to determine the ethnicity of the person interviewed.

Some countries recorded ethnicity confidentially in the questionnaires, and the labels of the ethnic groups were not available in the dataset code book. In some cases the labels could be retrieved from other information, such as language spoken, but in others the analysis had to be cancelled.

Lastly, some surveys provided only the language usually spoken by the respondent as the sole information on ethnicity. This information was used in a few cases. However, information on the language used for the interview was not considered in this study because it may not reflect correct ethnic identity. Each case is detailed in the Appendix by country and survey.

In some countries, when the necessary information was available, the ethnic distribution obtained from the DHS surveys was compared with the distribution obtained from the national censuses. Another source of information was the Ethnologue database, which provides names, locations, and population sizes of virtually all ethnolinguistic groups in Africa (Gordon, 2005).

In terms of sample size, the cluster sampling method used in DHS surveys is unlikely to provide an accurate ethnic distribution in a country. Many clusters are likely to be ethnic-specific and, as a result, the ethnic distribution may show overestimates or underestimates, according to chance. It would be cumbersome to try to estimate the biases involved because they depend on the ethnic distribution in each

enumeration area. However, since the emphasis of this study is on the specificity of ethnic groups, minor variations in sample size are unlikely to affect the main results.

The spelling of ethnic groups was kept as indicated in the DHS code books. Some groups have English spelling; others have French or Portuguese spelling. Some ethnic group labels differ from those in the classical ethnographic literature, but no attempt was made to correct them.

2.3 Sample Size and Grouping of Datasets

In many countries, more than one survey was conducted. When possible, the surveys were grouped together to increase the sample size of small groups and to reduce the confidence intervals associated with the prevalence of premarital fertility. This was done only in cases where the coding was consistent from survey to survey. Each case is detailed in the Appendix.

A main limitation of the analysis of ethnicity in DHS surveys is sample size. The typical DHS survey has a sample of about 7,000 women. A minority group that makes up only 1 percent of the population will have only 70 women surveyed. This was considered too small a sample for this demographic analysis. Therefore, after grouping surveys in a country, ethnic groups with at least 250 women were kept for analysis. This allowed even small groups to be included in countries where two or more surveys were conducted. A sample of 250 women will provide reasonable confidence intervals for the prevalence of premarital fertility. For example, a prevalence of 20 percent and a sample of 250 women give a 95 percent confidence interval of 15.1 to 24.9 percent, which still allows a distinction between low, medium, and high levels of premarital fertility. Of course, larger sample sizes are desirable for finer estimation; however, because the aim of the study was to analyze ethnic diversity, it was preferable to include small groups with a wider confidence interval rather than ignore them. In a few cases, even smaller groups (such as the Twa in Rwanda) were included when they had special significance for ethnographic reasons. Proper testing of differences between groups is sometimes done after controlling for other factors. Readers who wish to do their own testing can do so using the tables in the Appendix, which include sample size. It is recommended to use simple testing based on sample size (unweighted number of women interviewed)—assuming random distribution of women within ethnic group—and to ignore the design effect associated with cluster sampling. This is suggested because most clusters in Africa are likely to be ethnic-specific.

In the analysis of ethnicity, priority was given to specificity: well-defined groups were considered individually while others were lumped together in the "other and unknown" category. This was considered more informative than attempting to group them by language families or by geographical proximity. However, in cases of high ethnic diversity (such as in Nigeria and Cameroon), small ethnic groups were lumped together by geographical area, following the main divisions of the country.

2.4 Prevalence of Premarital Fertility

The DHS definition of marriage was used in this report for consistency. In DHS surveys, a woman is considered married if she is formally married (civil or religious union)[2] or if she is in an informal union (living together). For a discussion of discrepancies in African surveys regarding "married" and "in union," see Garenne (2004). Terminal celibacy is defined as the probability of never marrying by age 50. It is approximated by the proportion of never-married women age 40-49 at the time of the survey.

The Appendix shows two indicators of the prevalence of premarital fertility.[3] The first is the prevalence of premarital births, defined as the proportion of all births that occurred before the first

[2] Includes customary marriages

[3] Almost all DHS surveys interview women age 15-49 only and collect retrospective maternity histories.

marriage. Dates are counted in months and years, as defined by the century month code (CMC) system of the DHS surveys (corresponding variables are V509 for first marriage and V211 for first birth). The second is the proportion of women who have had a premarital birth to all women who have ever given birth or who have ever been married. (Never-married women who never had a live birth were excluded from the calculations.)[4] The prevalence of premarital intercourse, defined as the proportion of women who had intercourse before their first marriage (V525 variable), was calculated wherever possible.

Median age at first marriage was calculated by selecting all women age 25 and over and determining the age at which 50 percent of the women in each cohort were ever married. Because some women will never marry, this definition differs from the formal definition of median age at first marriage, which uses ever-married women as the population base. It is also different from mean age at first marriage, which is computed from life table analysis. In most cases the three values were found to be equivalent. Calculating life table estimates for each ethnic group would be cumbersome and would lead to erratic estimates in small ethnic groups.

2.5 Socioeconomic Variables

Several socioeconomic variables were considered as potential determinants of level of premarital fertility. Urban residence was measured by the proportion of interviewed women living in urban areas. This figure in DHS surveys sometimes varied substantially from the proportion urban as reported by the national census. Because of the cluster sampling method used in DHS surveys, some clusters for selected ethnic groups can end up primarily in one or the other residence categories (urban or rural). This introduces bias into the calculation of prevalence of premarital fertility for small ethnic groups. However, because this study focuses on diversity, the bias probably does not have much effect on the analysis.

Religion was taken as reported in the DHS surveys, and grouped into three categories: Muslims, Christians, and "other and unknown." First analyses revealed only minor differences among Christian groups (Protestants versus Catholics), although the distinction can be a major source of differentials when associated with other characteristics, as occurred in the case of Madagascar (Garenne and Zwang, 2004). Analyzing traditional religion is beyond the scope of this paper, and DHS surveys do not provide details on local religions, which are usually grouped under labels such as "traditional religion," "animist," or "spiritualist."

A wealth index was developed for this study, although it follows a model described elsewhere (Garenne and Hohmann, 2003). It is the sum of a group of dummy variables that count modern goods and amenities in the household. The wealth index was calculated the same way for all of the surveys so that it could be used comparatively and averaged for ethnic groups. It therefore differs from the DHS wealth index provided by some DHS surveys, which is based on principal components and wealth quintiles. Other data used for this analysis were straightforward and derived directly from the survey. Level of education was measured by the mean number of years of schooling (V133). Because use of a contraceptive method might be an important element in premarital fertility, "knowledge of any modern method" (V301), "ever use of any modern method" (V302), and "current use of any modern method" (V303) were considered separately. Use of contraception was examined only for women who had ever had intercourse and were never married—that is, use of contraception during the risk period for premarital births. Modern contraceptive methods were selected because they have the largest effect on unwanted pregnancies.

[4] The two indicators refer to live premarital births; premarital pregnancies that resulted in miscarriage or abortion are not included.

2.6 Methodology

Premarital fertility is a period-specific measure of births that occur before marriage. The period of risk for premarital births is the interval between first intercourse and first marriage. Premarital fertility is the product of a series of demographic behaviors: first intercourse, first marriage, contraceptive use, and abstinence between first intercourse and first marriage. The prevalence of premarital births in a group is likely to be positively correlated with age at marriage, and negatively correlated with age at first intercourse and use of modern contraceptive methods. These demographic factors have a structural effect on premarital fertility. Other variables, labeled "socioeconomic determinants," affect these intermediate variables, as well as attitudes. These include ethnicity, religion, urban-rural residence, level of education, polygyny, and wealth.

This analysis aims to describe differentials in the prevalence of premarital fertility by ethnicity as well as by demographic and socioeconomic factors. While some of the analysis could have been done using individual-level data, the use of ethnic group as the unit of analysis offered the opportunity to include several factors that could not otherwise be included—in particular, age at first marriage and level of contraceptive use. These were found to be major factors determining premarital fertility at the group level, but were inappropriate at the individual level. For example, if a woman is never married but had a premarital birth, she does not have an age at marriage.

3 Results

3.1 Samples of Ethnic Groups

Of the 51 countries in sub-Saharan Africa, 32 were covered by DHS surveys and 25 of these surveys had information on ethnicity (see Table 3.1). Altogether, 43 surveys were included in the analysis, 8 of which were WFS surveys and 35 were DHS surveys. Some 2,104 ethnic groups are included in the Ethnologue database for Africa, which is the most extensive count. It corresponds to an average of 310,600 persons per ethnic group, with populations ranging from a few individuals to several million.

In the 43 surveys analyzed, 263 ethnic groups were kept for final analysis. They were usually the larger groups, and their average population size was more than five times that of the average group size for the whole set. DHS surveys primarily include large groups, whereas the ethnographic literature tends to emphasize small, well-defined groups with specific cultural characteristics.

After grouping surveys, the average sample size per country was 12,915 women interviewed. The overall average of 1,228 women interviewed per ethnic group is an appropriate sample size for many demographic estimates, including premarital fertility.

Table 3.1 Ethnic groups in sub-Saharan Africa: Information from population and survey data, various sources including WFS and DHS national sample surveys

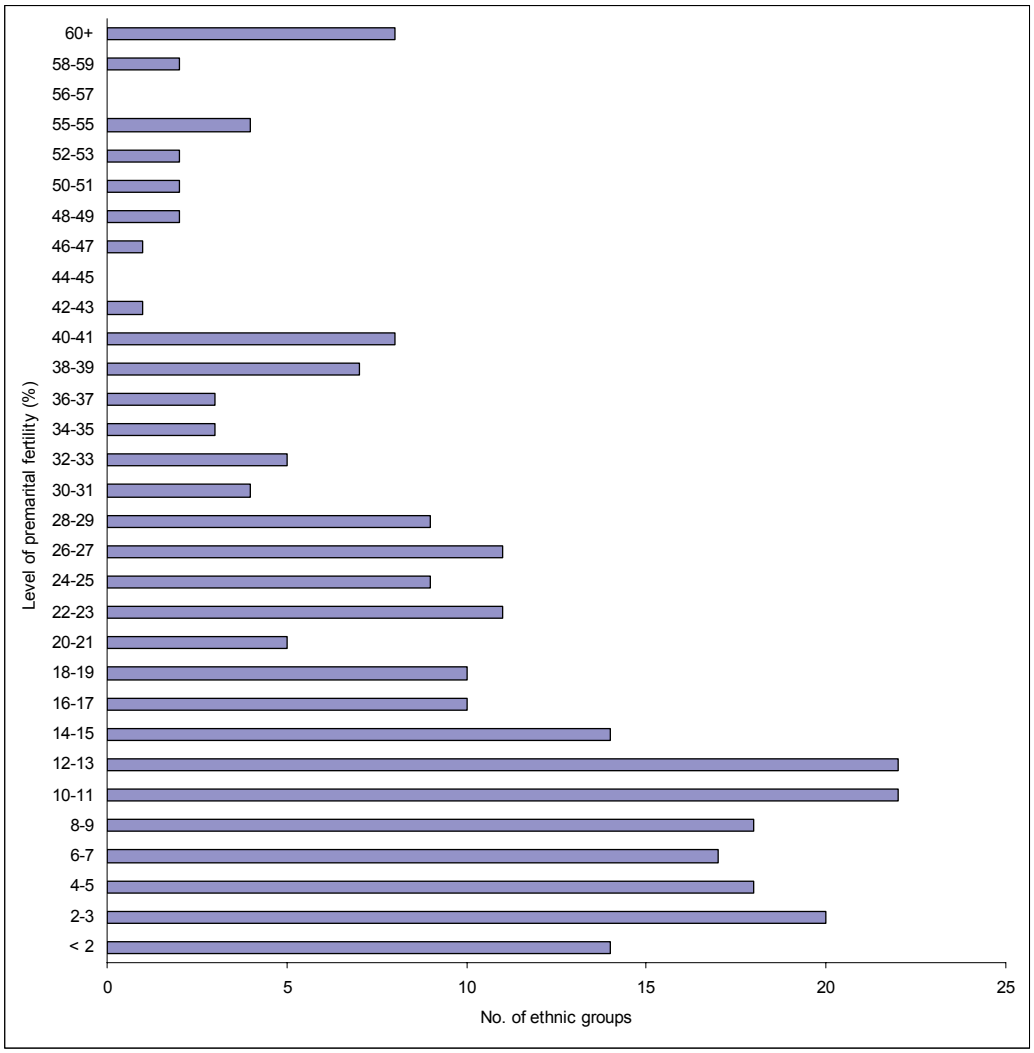
Characteristic	Total sub-Saharan Africa	Coverage of DHS surveys	
		Total	Information on ethnicity
Total population			
Number of countries	51	32	25
Number of ethnic groups	2,104[a]	1,804	1,648
Population covered (millions)	653.6[b]	562.2	491.6
Mean size of ethnic groups	310,600[c]	311,600	298,300
Sample surveys (DHS, WFS)		DHS and WFS surveys analyzed	
Number of surveys analyzed		43	
Number of ethnic groups		263	
Mean population size per group		1,621,200	
Average survey sample size (number of women interviewed)		12,915	
Mean number of women interviewed per ethnic group		1,228	

[a] Ethnologue database (Gordon, 2005)
[b] Population in year 2000 (United Nations, Population Division)
[c] Mean size = population/number of ethnic groups

3.2 Premarital Fertility by Ethnicity

The prevalence of premarital fertility, defined as the proportion of women who had a premarital birth, varies considerably among the 263 ethnic groups examined, from 0.1 percent (Kanem-Bornou in Chad) to 76.2 percent (Herero in Namibia). The wide range is illustrated in Figure 3.1. The distribution of ethnic groups by premarital fertility is complex and does not follow a simple statistical distribution; instead, it shows wide heterogeneity. At one end of the range are low levels of premarital fertility, which could be interpreted (in repressive societies) as accidents or as deviant behavior by a small proportion of the population. A second group clusters between 10 and 13 percent; another group is 22 to 27 percent; another group is 38 to 41 percent; and a number of ethnic groups have very high levels of premarital fertility (50 percent and above). Such a wide range of prevalence of premarital fertility reflects the wide variety of behavioral norms described in the ethnographic literature, from societies that require girls to marry right after puberty—in which case premarital fertility is virtually impossible—to societies in which marriage occurs late and premarital intercourse is permitted.

Figure 3.1 Distribution of ethnic groups according to the prevalence of premarital fertility, 25 countries in sub-Saharan Africa



Five levels of premarital fertility can be defined: "Very Low" for levels below 9.0 percent, with an average of 4.7 percent; "Low" from 9.0 to 14.9 percent, with an average of 12.1 percent; "Medium" from 15.0 to 29.9 percent, with an average of 22.0 percent; "High" from 30.0 to 49.9 percent, with an average of 38.6 percent, and "Very high" above 50.0 percent, with an average of 66.5 percent (Table 3.2). The mean population size of ethnic groups did not indicate a linear relationship with level of premarital fertility; permissive and repressive behaviors were found in small and large groups alike.

Table 3.2 Distribution of ethnic groups by level of premarital fertility, sub-Saharan Africa

Level of premarital fertility	Range (%)	Number of ethnic groups	Mean population per group	Mean level of premarital fertility (%)
Very low	< 9	81	1,969,661	4.7
Low	9-14	57	1,965,123	12.1
Medium	15-29	73	1,160,181	22.0
High	30-49	34	1,031,049	38.6
Very high	50+	18	1,949,115	66.5
Total		263	1,621,245	17.9

3.3 Comparison with the Ethnographic Literature

Estimates of the prevalence of premarital fertility by ethnicity in DHS surveys were matched with ethnographic characteristics in Murdock's Atlas (Table 3.3). Matching groups from the two sources was difficult because of the different ethnic categories and many missing values in the Atlas. Altogether, only 91 ethnic groups could be matched; of these, 36 had ethnographic details on premarital norms. Despite the low coverage, a pattern emerged. Groups who were more repressive (V and E) had lower premarital fertility (9.2 percent and 12.9 percent), intermediate groups (P) had medium values (15.8 percent), and groups classified as permissive (A and F) had higher values (37.9 percent and 20.0 percent). Even though the sample of selected ethnic groups was obviously biased and the sample sizes of some groups were small, the average of selected groups (17.7 percent) was close to the African average, and the demographic classification approximately matched the ethnographic typology.

Table 3.3 Norms of premarital sexual behavior in African ethnic groups from Murdock's Atlas, and relationship between ethnicity and the prevalence of premarital fertility in DHS surveys

	Norms of premarital sexual behavior	Number of groups in Atlas	Number of groups found in DHS surveys	Average percentage of women with a premarital birth
A	Premarital sexual relations allowed; no sanctions unless pregnancy results	12	4	37.9
F	Premarital sexual relations freely permitted; no sanctions	48	19	20.0
P	Premarital sexual relations prohibited; weak sanctions; not infrequent in fact	15	3	15.8
E	Premarital sexual relations precluded by early age at marriage for females	11	5	12.9
V	Insistence on virginity; premarital sexual relations prohibited; strong sanctions, rare in fact	28	5	9.2
	Total, stated	114	36	17.7
	Total, not stated	163	227	
	Total	277	263	17.7

Source: Murdock Atlas (1967) and DHS surveys

3.4 Demographic Factors and Socioeconomic Determinants

Correlations of premarital fertility with demographic factors are shown in Table 3.4. Premarital fertility is positively correlated with age at first marriage (+0.779), age at first intercourse (+0.217), and terminal celibacy (+0.687). The first and third correlations are straightforward because later marriage and lower levels of marriage are likely to result in an increase in premarital fertility. The second correlation shows the results of the selection effect: women who marry later and have first intercourse at the time of marriage have higher age at first intercourse. In fact, if age at marriage is controlled, the net effect of age of first intercourse becomes negative.

Table 3.4 Correlation of premarital fertility with demographic factors, modern contraception, and socioeconomic determinants, sub-Saharan Africa

Variables	Correlation coefficients	P-value	Significance
Demographic factors			
Age at first marriage	0.779	6.10E-55	*
Age at first intercourse	0.217	3.98E-04	*
Terminal celibacy	0.687	4.46E-38	*
Modern contraception			
Knowledge	0.319	1.30E-07	*
Ever use	0.496	9.79E-18	*
Current use	0.373	4.36E-10	*
Socioeconomic determinants			
Urbanization	0.456	6.80E-15	*
Education	0.692	9.45E-39	*
Wealth index	0.588	7.98E-26	*
Proportion Muslim	-0.436	1.29E-13	*
Proportion Christian	0.383	1.26E-10	*
Polygyny	-0.478	2.11E-16	*

$p = <0.05$

The effect of contraception is counterintuitive; all three variables (knowledge, ever use, and current use) had a positive correlation with premarital fertility, suggesting that greater use of contraception leads to higher fertility. Such a conclusion is the result of reverse causality because groups that have higher levels of premarital fertility are more likely to use contraception. So far, use of modern contraceptive methods before marriage has not had a large enough impact to allow women to prevent premarital births (assuming that this is their desire). Thus, the results in Table 3.4 imply that use of modern contraceptive methods is not an important factor in premarital fertility.

Four socioeconomic variables were found to have a positive correlation with premarital fertility: urban residence, level of education, wealth, and Christianity. The effect of these variables is related primarily to higher age at first marriage, but also increased terminal celibacy (Table 3.5).

The two remaining variables, Islam and polygyny, had negative correlations with premarital fertility. Here again, the effect is primarily related to nuptiality, particularly lower age at marriage, but also decreased terminal celibacy (Tables 3.4 and 3.5). Note that Islam and polygyny are correlated (0.493), and that both tend to encourage early and universal marriage for women.

An analysis of premarital fertility shows that socioeconomic determinants explain about half (57 percent) of the total variance. The rest is due to ethnicity, thus emphasizing the strong role of cultural factors in childbearing before marriage.

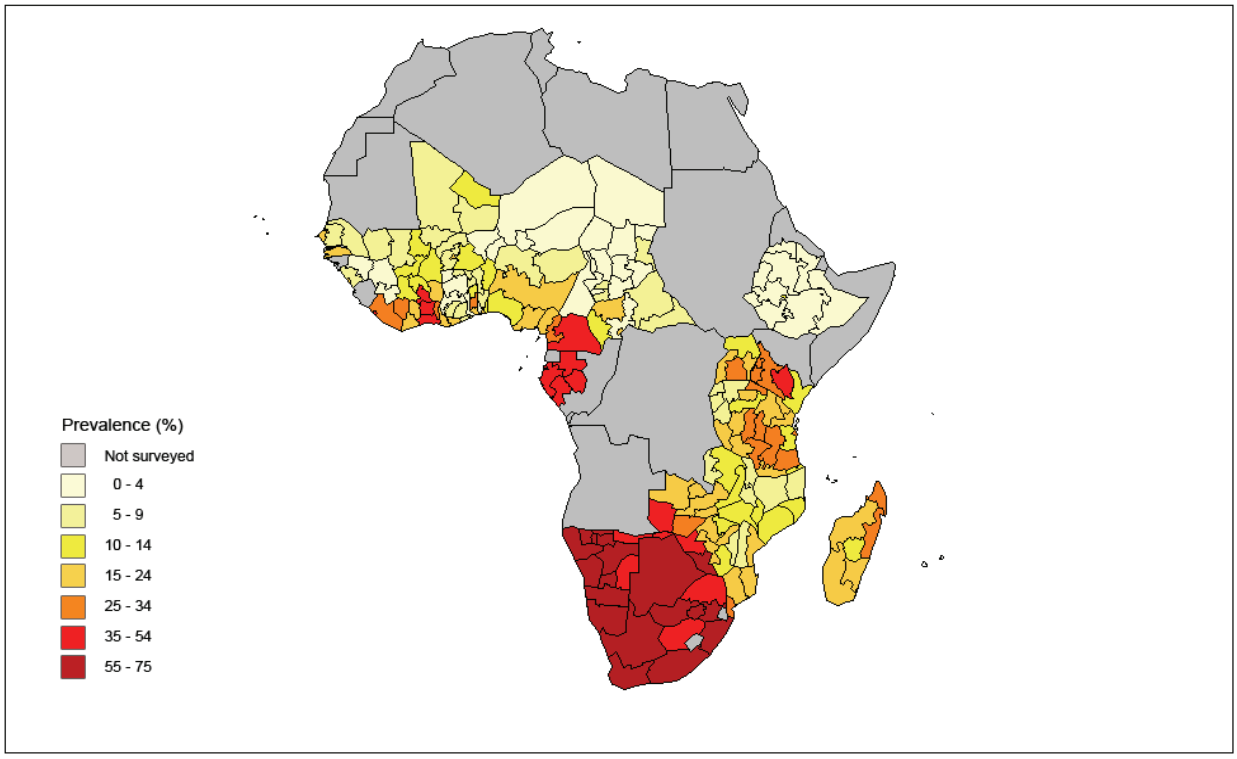
Table 3.5 Correlation coefficients between socioeconomic determinants and demographic factors, sub-Saharan Africa (N = 263 ethnic groups)

Socioeconomic determinants	Nuptiality			Modern contraception		
	Age at first marriage	Age at first intercourse	Terminal celibacy	Knowledge	Ever use	Current use
Urbanization (%)	0.358	0.112	0.270	0.290	0.338	0.173
Education (No. of years)	0.681	0.461	0.450	0.470	0.496	0.312
Wealth index	0.616	0.371	0.470	0.335	0.572	0.406
Muslim (%)	-0.458	-0.314	-0.265	-0.297	-0.328	-0.187
Christian (%)	0.422	0.339	0.220	0.382	0.322	0.158
Polygyny (%)	-0.523	-0.338	-0.430	-0.329	-0.304	-0.247

3.5 Geographical Patterns

All these factors interact to shape geographical patterns of premarital fertility. Details at the country level are provided in the Appendix and show great diversity in countries with complex social systems and numerous ethnic groups. Some regional patterns emerge. Prevalence of premarital fertility is low in the West African Sahelian areas, medium in coastal West Africa and in Eastern Africa, and high to very high in Southern Africa (Figure 3.2). In Sahelian West Africa, there is a gradient from the most conservative area in the central part of the region, primarily rural and Muslim, to the more urbanized West, with the exception of Mandinka and Poular areas in Northern Guinea, which appear to be very

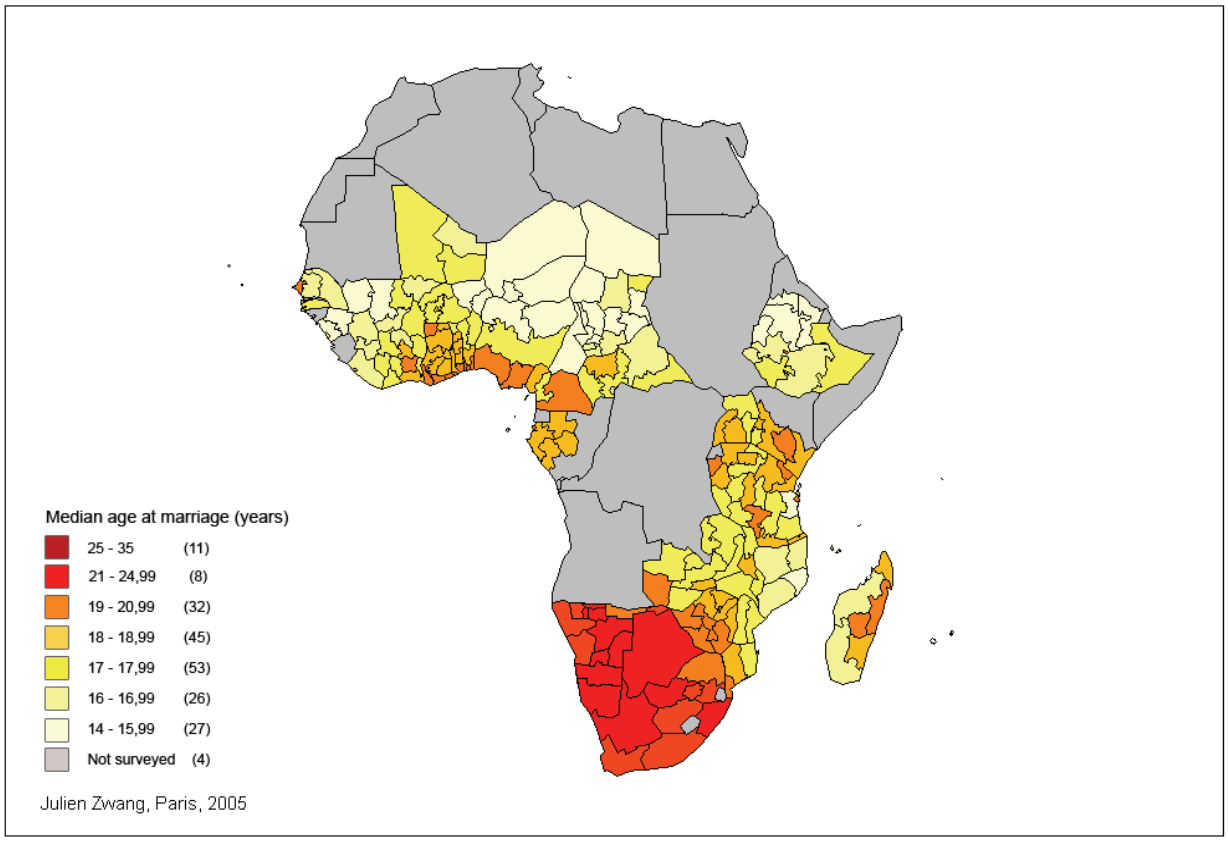
Figure 3.2 Prevalence of premarital fertility in Africa, by region



conservative. On the West African coast, Liberia and southern areas of Côte d'Ivoire appear as exceptions. In Central Africa, a pocket of high levels of premarital fertility ranges from southern Cameroon to Gabon. In Eastern Africa, pockets of higher premarital fertility are seen in southern Uganda, central Kenya and southern Tanzania. The highest levels of premarital fertility are found in Southern Africa; this includes Namibia, South Africa and Botswana, up to southern Zambia. In Madagascar, premarital fertility is more prevalent on the northeast coast and less prevalent in the central highlands.

The geographical patterns for the prevalence of premarital fertility in sub-Saharan Africa are related to the patterns for age at first marriage (Figure 3.3). However, some exceptions can be noted. Premarital fertility is low in Rwanda, Burundi, and central Madagascar at the same time that age at first marriage is high. In these countries contraceptive use is low and there is strong social control of young women.

Figure 3.3 Median age at first marriage in Africa, by region

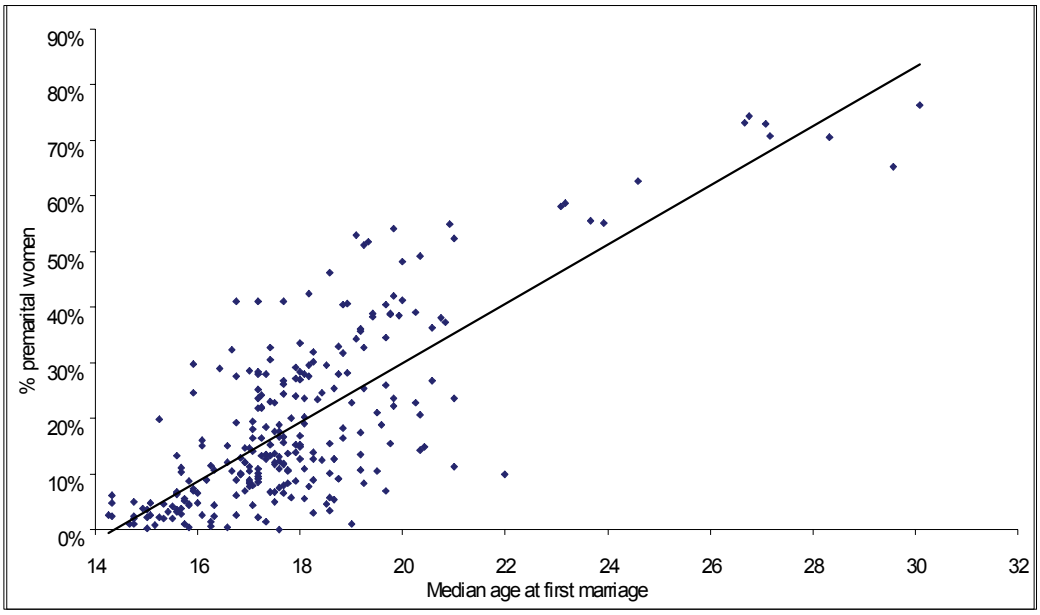


A better illustration of the relationship between premarital fertility and age at first marriage is seen in Figure 3.4. This figure reveals three situations:

- Very low age at marriage (<15 years), which correlates with very low premarital fertility (<10 percent).
- Very high age at marriage (≥22 years), which correlates with very high premarital fertility (≥50 percent).
- Intermediate levels of age at first marriage (15-21 years) with a wide range of levels of premarital fertility. For instance, around age 18, premarital fertility ranges from virtually 0 to 40 percent or more.

This case highlights the importance of cultural factors that are not explained by the socioeconomic variables examined in this study, and which reveal the different norms regarding premarital fertility that are associated with the various ethnic groups.

Figure 3.4 Relationship between prevalence of premarital fertility and median age at first marriage among 263 African ethnic groups



3.6 Outliers from Demographic Variables

Another way of showing how cultural factors shape the distribution of premarital fertility—beyond the effect of demographic factors—is looking at the outliers, groups that differ significantly from expected values based on median age at first marriage and median age at first intercourse.

The negative outliers are groups with lower-than-expected premarital fertility, which indicates a more repressive attitude toward women who give birth before marriage. Groups differing by more than 10 percent were found in several countries throughout Africa: many groups in Ghana (Akwapim, Asante, Ga-Adangbe, Fante, other Akan, Ewe, Guan, Mole-Dagbani, Grussi); several groups in southeastern Nigeria (Igbo, Ibibio, Annang, Ijaw, Urhobo) and the Yoruba; many groups in Malawi (Yao, Lomwe,

Chewa, Sena, Anyanja); several groups in the Central African Republic (Yakoma-Sango, Mandjia, Banda, Zande-Nzakara, Gbaya); several groups in Benin (Yoa and Lokpa, Adja, Fon, Betamaribe, Yoruba); and two groups in Tanzania (Makonde, Sukuma). The average prevalence of premarital fertility for these groups was 11 percent, which is half of what was expected (22 percent) based on age at first marriage and age at first intercourse.

The positive outliers are groups with higher-than-expected premarital fertility, which indicates a more permissive attitude toward women who give birth before marriage. Here again, groups differing by more than 10 percent were found throughout Africa: many groups in Liberia (Grebo, Vai, Krahn, Krou/Sapo, Gola, Bassa, Mano, Lorma); many groups in Gabon (Okande-Tsogho, Kota-Kele, Nzabi-Duma, Mbede-Teke, Shira-Punu/Vili, Fang); several groups in Tanzania (Pare, Ngoni, Iramba, Pogoro, Ndengereko); several groups in South Africa (Tsonga, Venda, Swazi), as well as in nearby Zimbabwe (Ndebele), Namibia (Caprivi/Lozi) and Southern Zambia (Mbunda, Bisa, Tonga); several groups in Cameroon (Boulou-Fang, other Adamaoua, Wimbum-Yamba, Bamoun, Gbaya); and small groups in southern Senegal (Diola, Manjaak/Mancagne/Balant). The average prevalence of premarital fertility for these groups was 43 percent, which is well above what was expected (30 percent) based on age at first marriage and age at first intercourse.

4 Conclusions

This study of the prevalence of premarital fertility by ethnicity shows wide variation throughout sub-Saharan Africa. A woman giving birth before marriage ranges from being a rare event to being almost universal. Such a broad range of behavior is unusual when compared with other demographic and social indicators. While problems of definition and sample size must be taken into consideration, the overall diversity of the results of this study are apparent from the data, and matches the diversity of behavior documented in the ethnographic literature. DHS surveys facilitate this kind of comparative analysis because they utilize consistent questions on age at first marriage, age at first intercourse, and age at first birth.

The prevalence of premarital fertility has a structural component; it is bounded by the window of opportunity (for a birth to occur) between a woman's first intercourse and her first marriage, assuming nonuse of contraception during this period. In the study, the correlation between age at marriage and premarital fertility was strong. Age at marriage, which varied widely among groups, was found to be the most important factor in premarital fertility. Age at first intercourse had varied less and had less impact on premarital fertility. However, age at first marriage and age at first intercourse do not explain everything. The study found that while attitudes and behaviors have considerable influence, contraceptive use has little impact. A number of ethnic groups were found to be particularly repressive in terms of premarital intercourse whereas others were generally permissive. These behaviors are ethnicity-specific even though other factors such as religion have an impact.

Cultural change in the twentieth century has influenced patterns of premarital fertility in Africa. First, the spread of monotheistic religions has had a strong negative effect on premarital fertility. At the same time, increases in modern education and wage-based income have had a positive effect, with women delaying childbirth until after marriage. These contrasting forces explain to a large extent the higher levels of premarital fertility found in urban areas and in wealthier countries. The balance between positive and negative effects may explain the intermediate situation in some countries, while other countries have been more influenced by one set of factors than another. Here again, the variation within and between groups is substantial in sub-Saharan Africa, and modernization has further complicated an already diverse situation.

This overview has several limitations. Above all, we regret the lack of details on ethnicity and its coding in many countries. However, now that a list of ethnic groups is available with standardized coding, we encourage the use of the list in demographic surveys. This will allow further analysis and, in some instances, the grouping of cases by language family or geographical proximity. Such activities promoting standardization would improve the quality of analyses. Some countries have chosen to ignore ethnicity in their demographic surveys for political reasons. However, failing to record this important information, which is needed for adequate program planning at national and regional levels, misses a valuable opportunity for analysis and deeper understanding of African societies.

Ethnicity has long been neglected in demographic research, partly because of its complexity and its lack of standardization, but also because of lack of interest among those studying basic topics such as fertility and mortality. However, for topics such as nuptiality and migration, or the spread of HIV/AIDS, ethnicity may be one of the key factors in differentials by country or region. This study has shown the important effect of ethnicity on premarital fertility. The correlation of data on premarital fertility in sub-Saharan Africa by ethnic group has yielded new information that could not have been obtained using standard socioeconomic determinants alone.

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Appendix

Premarital Fertility and Ethnicity

in Africa:

Country Analysis

Overview of the Country Analysis

This section presents estimates of premarital fertility by ethnicity for 25 countries in sub-Saharan Africa. A description of the methodology is presented in the main part of this report. The Appendix is organized by country with the data presented in the same format for each country: description of the available surveys, distribution of selected ethnic groups, and estimates of premarital fertility and its main correlates (median age at first marriage, percentage living in urban areas, and percentage that had sexual intercourse before marriage).

A figure for each country illustrates the relationship between age at first marriage and premarital fertility, which is defined as the proportion of women who gave birth before marriage. Usually, the relationship is linear; that is, premarital fertility increases as age at marriage increases. However, in some countries the relationship is either absent (homogeneous countries) or complex (curvilinear relationship). A straight line is shown in each figure to guide the reader.

The country analyses presented here are limited in scope. The aim was to explain how ethnic groups were selected for analysis and to describe the main relationships between premarital fertility, age at first marriage, and ethnicity, at the national level. All estimates were calculated using weighted samples (V005 in DHS files).

Definitions

Definitions for the indicators presented in Table 3 for each country are the following:

Percent urban is the proportion of interviewed women living in urban areas. For some ethnic groups the percentage urban may differ from that cited in the national census. Because of the cluster sampling method used in DHS surveys, some clusters for selected ethnic groups can end up primarily in urban or rural areas.

Median age at first marriage was obtained by selecting women age 25 and over and calculating for each cohort the age at which 50 percent of the women were ever married. This definition is different from life table estimates for median age at marriage.

Percent never married is the proportion of women age 40-49 at the time of the survey who were never married.

Percent premarital births is the proportion of births that occurred prior to the woman's first marriage, dates being counted by month and year.

Percent women with premarital birth is the proportion of women who had at least one premarital birth, among those who are either ever married or ever fertile. Never-married women who never had a live birth are excluded.

Percent premarital intercourse is the proportion of women who had sexual intercourse prior to their first marriage, among those who ever had intercourse.

BENIN

Benin conducted one WFS survey in 1982 and two DHS surveys, in 1996 and 2001. The WFS survey code book did not provide the codes for ethnicity (V707), and it was not possible to recover the labels from the "language spoken at home" variable (S727), except for a few obvious cases. It was decided that only the data from the two DHS surveys would be used. The 1982 WFS survey included the 42 official ethnic groups of Benin. The DHS surveys included only the eight main linguistic groups. These groups appear to have remained stable over the years and were also used in the census.

Table 1 Sample size and main characteristics of surveys, Benin

Benin	WFS 1982	DHS 1996	DHS 2001
No. of women interviewed	4,018	5,491	6,219
No. of ethnic categories, local	42		
No. of families of ethnic groups		8	8
No. of ethnic categories, foreign	1	1	1
Percent other and unknown	6.7	4.8	4.6

The two DHS surveys were compatible, with coding of the ethnicity variable (V131) basically the same in both surveys (Table 2). There were, however, some minor differences, the most important being the higher proportion of Fon, the largest ethnic group in the country, in the second DHS survey, and a corresponding gap among the Bariba, Yoa and Lopka, Betamaribe, and Peulh. This pattern is related to the higher number of women who answered the questionnaire in Fon in the second survey (49.7 percent), compared with 1996 (35.3 percent) and 1982 (28.9 percent).

Table 2 Distribution of ethnic groups by survey, Benin

Ethnic group	Census 1992	DHS 1996	DHS 2001	Difference between the two DHS surveys: P-value	Difference between the two DHS surveys: Significance
Adja	15.6	14.6	15.1	0.438	
Bariba	8.6	9.5	8.2	0.014	*
Dendi	2.8	2.5	2.7	0.548	
Fon	42.2	39.9	45.0	0.000	*
Yoa and Lokpa	3.8	5.7	3.7	0.000	*
Betamaribe	6.1	6.4	5.1	0.004	*
Peulh	6.1	6.0	3.8	0.000	*
Yoruba	12.1	10.7	11.9	0.042	*
Other and unknown	2.7	4.8	4.6	0.642	
Total	100.0	100.0	100.0	7.37E-48	*

*p <0.05

It was decided that this minor difference between the two surveys would not seriously bias the estimates. In fact, it probably functioned to minimize differences between the Fon and the other groups because, increasingly, people in the other groups tended to assimilate themselves into the dominant group. In addition, the distribution of the population in the second DHS survey was similar to that of the 1992 census, with some minor differences. The 1996 and 2001 DHS surveys were therefore combined for the final estimates.

Premarital Fertility

Premarital fertility is low in Benin compared with other African countries. The proportion of women with a premarital birth ranges from 4.9 percent among the Peulh to 13.6 percent among the Yoruba. The Yoruba are among the more urbanized groups and have a somewhat higher age at first marriage, whereas the Peulh are the least urbanized group and have a lower than average age at marriage. Overall, premarital fertility is low given the relatively high prevalence of premarital intercourse (55.0 percent).

Table 3 Premarital fertility and nuptiality indicators, Benin

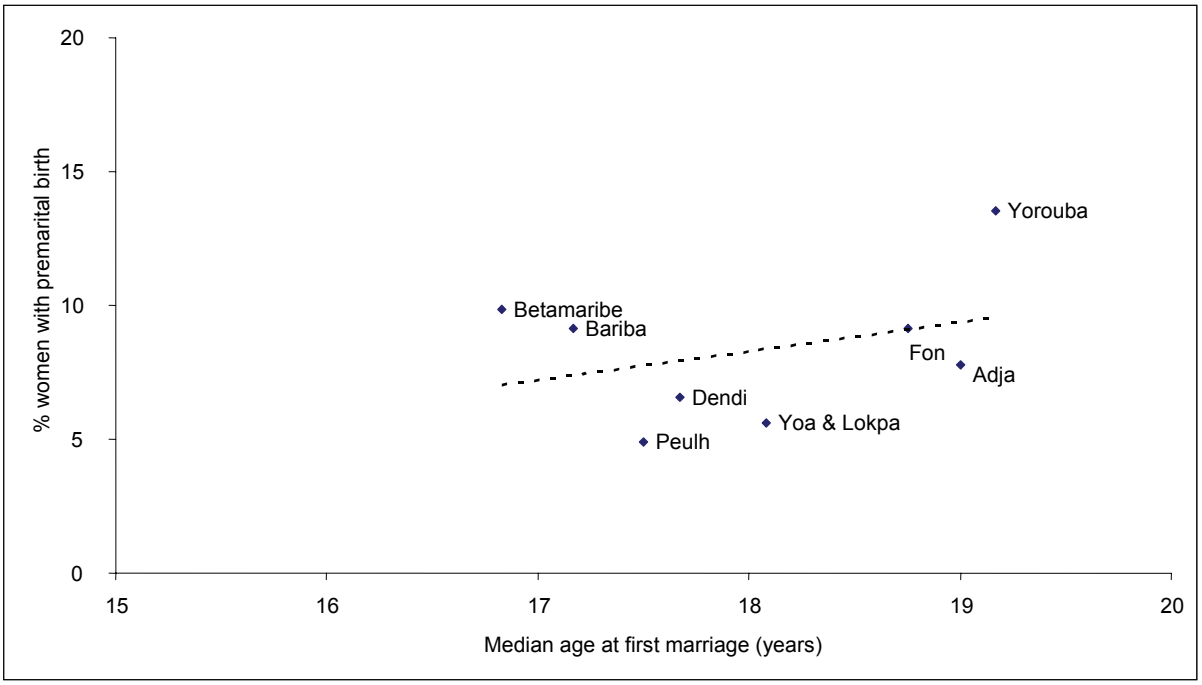
Ethnic group	Number of women surveyed	Percent urban	Median age at first marriage (years)	Percent age 40-49 never married	Percent premarital births	Percent women with premarital birth	Percent premarital intercourse
Adja	1,941	36.6	19.0	0.0	2.8	7.8	44.2
Bariba	1,037	39.0	17.2	0.0	3.0	9.1	36.5
Dendi	292	64.8	17.7	0.0	2.2	6.5	35.9
Fon	4,761	40.5	18.8	0.7	3.4	9.2	58.2
Yoa and Lokpa	590	30.2	18.1	0.8	1.6	5.6	31.9
Betamaribe	751	28.1	16.8	1.7	4.3	9.8	37.2
Peulh	589	14.9	17.5	0.0	1.8	4.9	20.1
Yoruba	1,211	52.7	19.2	2.0	5.2	13.6	55.9
Other and unknown	538	58.1	19.0	1.4	5.2	12.2	54.8
Total	11,710	40.2	18.5	0.7	3.4	9.1	55.0

Source: Authors' calculations after merging data from 1996 and 2001 DHS surveys.

Correlation with age at marriage was low (ρ = 0.35). Figure 1 shows three groups: a group in the middle with expected values of medium age at marriage and low premarital fertility (Peulh, Dendi, Yoa and Lokpa); a group with low age at marriage and higher premarital fertility (Bariba, Betamaribe); and a group with higher age at marriage and higher premarital fertility (Yoruba, Fon, Adja).

The correlation with urban residence was more straightforward, although it remained moderate (ρ = 0.40). The more urbanized groups also had higher premarital fertility. The only exception was the Dendi, who had lower than average premarital fertility despite the highest proportion of urban residence.

Figure 1 Correlation between premarital fertility and age at first marriage, Benin



BURKINA FASO

Burkina Faso conducted three DHS surveys, in 1993, 1996, and 2003. The second DHS survey included more ethnic groups (Bissa, Dafing, Dagara, Samo) than the first, although these disappeared in the last survey, with the exception of the Bissa. There are about 50 ethnolinguistic groups reported in Burkina Faso. Grouping them into 10 categories is a simplification, however the largest groups are well defined in the DHS surveys.

Table 1 Sample size and main characteristics of DHS surveys, Burkina Faso

Burkina Faso	DHS 1993	DHS 1996	DHS 2003
No. of women interviewed	6,354	5,445	12,477
No. of ethnic categories, local	9	13	10
No. of ethnic categories, foreign	1	6	1
Percent other and unknown	7.2	12.2	8.7

Overall, the three DHS surveys were compatible with respect to ethnic distribution (Table 2), however there were several notable differences. The Dioula group almost disappeared in 1996 (0.5 percent compared with 7.5 percent in 1993) then reappeared in the last survey (5.7 percent in 2003). According to census sources, however, Dioula speakers are assumed to make up about 9.3 percent of the population.

Table 2 Distribution of ethnic groups by survey, Burkina Faso

				Difference between the first two DHS surveys	
Ethnic group	DHS 1993	DHS 1996	DHS 2003	P-value	Signifi-cance
Bobo	6.9	4.7	2.5	0.245	
Dioula	7.5	0.5	5.7	0.001	*
Fulfude (Peulh)	5.3	6.5	6.3	0.561	
Gourmantche	4.2	8.2	6.9	0.056	
Gourounsi	5.8	5.3	3.4	0.796	
Lobi	4.4	1.3	5.2	0.016	*
Mossi	56.1	58.8	56.5	0.519	
Senoufo	1.1	2.3	3.8	0.313	
Touareg	1.5	0.4	1.1	0.150	
Other and unknown	7.2	12.2	8.7	0.054	
Total	100.0	100.0	100.0	<E-99	*

*p <0.05

The questions about ethnicity were the same in the three DHS surveys (Q117, Q119, and Q118 respectively: *Quelle est votre ethnie*?). There was no evidence of a major bias in the sampling in 1999, and the provinces where Dioula are normally counted (Houet, Kadiago, Kenedougou, Kossi, Mouhoun, Sourou) were well represented in 1999, although somewhat less so than in 1993. Some of the Dioula could have been counted among the new categories in 1999, but these were not in the same provinces. It seems more likely that there was some confusion in 1999 between ethnic category, language of the interview, and language spoken at home, or some other unknown factor. Other smaller biases were identified in 1999; more people were counted as Gourmantche and fewer as Lobi. Other differences could be attributed to sample biases.

Despite these small discrepancies, the three surveys were merged for the final analysis. It is likely that the Dioula category is underestimated. This might reduce the specificity of some of the other groups because some of the Dioula were probably merged with them.

Premarital Fertility

Premarital fertility in Burkina Faso is low compared with other African countries and marriage is virtually universal for women. The proportion of women with a premarital birth ranges from 2.6 percent among the Touareg to 12.4 percent among the Senoufo.

Table 3 Premarital fertility and nuptiality indicators, Burkina Faso

Ethnic group	Number of women surveyed	Percent urban	Median age at first marriage (years)	Percent age 40-49 never married	Percent premarital births	Percent women with premarital birth	Percent premarital inter-course
Bobo	1,155	28.8	17.2	0.3	3.1	10.0	32.4
Dioula	1,310	32.1	17.3	0.0	3.0	9.4	29.9
Fulfulde (Peulh)	1,392	9.8	15.8	0.0	2.1	5.6	13.3
Gourmantche	1,373	3.0	17.0	0.0	3.2	8.0	7.7
Gourounsi	1,262	22.4	17.8	0.8	3.3	9.3	27.0
Lobi	1,435	14.3	17.2	0.3	3.3	10.5	21.0
Mossi	14,048	21.5	17.7	0.1	2.5	7.4	29.1
Senoufo	922	28.8	16.8	0.0	4.3	12.4	34.3
Touareg	243	3.4	15.1	0.0	1.1	2.6	5.5
Bissa	758	17.1	17.8	0.0	2.9	8.3	20.0
Other and unknown	1,378	22.9	17.4	0.0	3.9	10.6	30.8
Total	25,276	20.1	17.4	0.1	2.8	8.1	26.1

Source: Authors' calculations after merging data from 1993, 1999, and 2003 DHS surveys.

The main difference by ethnicity was between the pastoral groups (Fulfulde, Touareg) with low age at marriage, low urban residence, and low levels of premarital fertility, and the more urbanized groups (Dioula, Bobo, Senoufo) for whom the average age at first marriage is about 17 years. The Gourmantche and the Lobi had higher levels of premarital fertility than would be expected by their level of urban residence or age at marriage, whereas the Mossi and Gourounsi were well below the regression lines linking premarital fertility to urban residence or age at marriage.

The correlation with urban residence was low (r = 0.26), as it is for the country in general. The correlation with age at first marriage was much higher (0.71), pointing up the gap of almost three years in median age at marriage between the Touareg and the Bissa (Figure 1). Differences in age at marriage are a major factor in the varying levels of premarital fertility in Burkina Faso. The main division is between the northern pastoral groups (Touareg, Peulh), which have very low age at first marriage, and all the other groups.

Figure 1 Correlation between premarital fertility and age at first marriage, Burkina Faso

CAMEROON

Cameroon conducted one WFS survey in 1978 and three DHS surveys, in 1991, 1998, and 2004. Coding of ethnicity was very different in 1978 and not compatible with that of later DHS surveys. Ethnicity was not available in 1991. Coding of ethnicity was identical in the 1998 and 2004 surveys, therefore these two were combined for analysis.

Table 1 Sample size and main characteristics of surveys, Cameroon

Cameroon	WFS 1978	DHS 1991	DHS 1998	DHS 2004
No. of women interviewed	8,219	3,871	5,501	10,656
No. of ethnic categories, local	33	0	46	46
No. of ethnic categories, foreign	1	1	1	1
Percent other and unknown	4.8	0.2	1.4	3.9

The 1998 and 2004 DHS surveys were largely compatible (Table 2). With the exception of the Bamileke, frequencies for ethnic groups were not significantly different in the two surveys. Because of the large number of ethnic groups in Cameroon—some 240 have been reported in the ethnographic literature—and the small sample size of some groups, only larger groups with at least 250 women were retained and merged according to regional residence. This resulted in 24 groups: 19 were well defined ethnically, 4 were regional groupings, and one comprised the category "other and unknown." Because of the large sample size of the second survey and the merging of the two surveys, the differences in demographic behavior between groups were marked and most were significant.

Table 2 Distribution of ethnic groups by survey, Cameroon

				Difference between the two DHS surveys	
V131	Ethnic group	DHS 1998	DHS 2004	P-value	Signifi-cance
1	Arabe Choa	0.9	0.9	0.965	
2	Peulh	4.5	5.6	0.479	
3	Haoussa	0.6	0.8	0.944	
4	Kanuri	0.3	1.0	0.690	
5	Bata	1.3	0.2	0.480	
6	Daba	0.1	0.7	0.678	
7	Guidar	1.2	1.3	0.919	
8	Kotoko	0.7	0.8	0.955	
9	Kwang/Kera	0.0	0.0	0.990	
10	Mafa	6.6	3.9	0.104	
11	Margui	1.0	0.3	0.657	
12	Massa	1.8	1.7	0.949	
14	Mousgoum	1.1	0.1	0.551	
15	Sara	0.9	0.6	0.872	
16	Wandala/Mandara	0.8	1.3	0.776	
17	Dourou	1.2	0.3	0.579	
18	Fali	2.6	1.2	0.400	
19	Gbaya	1.3	1.6	0.818	
21	Mambila	0.4	1.1	0.662	
22	Mboum	3.4	6.5	0.060	
23	Samba	0.1	0.2	0.948	
24	Banyang	1.2	0.8	0.820	
25	Bendi	0.1	0.1	0.997	
26	Efik-Korop	0.2	0.1	0.951	
27	Ejagham	0.1	0.2	0.960	
28	Mbembe	0.0	0.8	0.648	
29	Tiv	0.0	1.3	0.431	

Continued...

Table 2—*Continued*

V131	Ethnic group	DHS 1998	DHS 2004	Difference between the two DHS surveys: P-value	Significance
30	Bebe	0.8	0.4	0.855	
31	Menchum	0.6	0.3	0.828	
32	Momo	3.0	2.0	0.542	
33	Ngemba	3.4	3.1	0.840	
34	Ring	4.3	3.4	0.572	
35	Wimbum-Yamba	1.8	1.6	0.894	
36	Bamoun	4.3	3.7	0.730	
37	Bamilike-Central	15.4	21.0	0.000	*
38	Cotier	2.1	1.3	0.590	
39	Ngoe-Oroko	2.2	3.0	0.586	
40	Bafia	0.6	1.1	0.751	
41	Banen-Bandem	0.9	0.3	0.745	
42	Yambassa	1.4	1.1	0.828	
43	Bassa-Bakoko	4.7	4.8	0.962	
44	Beti	12.0	9.4	0.101	
45	Boulou-Fang	3.0	3.6	0.744	
46	Kako	1.1	0.8	0.834	
47	Meka	4.3	1.8	0.122	
48	Pygmee	0.5	0.1	0.809	
	Other and unknown	1.4	3.9	0.618	
	Total	100.0	100.0		

*p <0.05

The variation in demographic behavior by ethnicity is marked (Table 3). Age at first marriage ranged from 14.7 to 20.8 years; the proportion of women who had premarital intercourse was 4.8 to 79.2 percent; the proportion of premarital births was 0.2 to 26.2 percent; and the proportion of women with a premarital birth was 1.0 to 49.1 percent. The diversity of behaviors associated with premarital fertility in Cameroon is almost as great as that of the entire African continent.

Table 3 Premarital fertility and nuptiality indicators, Cameroon

Ethnic group	Number of women surveyed	Percent urban	Median age at first marriage (years)	Percent age 40-49 never married	Percent premarital births	Percent women with premarital birth	Percent premarital inter-course
Peulh	835	48.6	14.8	0.0	1.6	5.0	10.4
Guidar	201	29.9	15.4	0.0	1.1	3.2	10.6
Mafa	605	21.1	15.3	0.0	1.7	4.6	10.2
Massa	215	29.9	15.1	0.0	0.9	2.5	11.0
Other Northern	920	31.7	15.0	0.0	1.2	3.5	7.4
Fali	233	15.1	14.7	0.0	0.2	1.0	4.8
Gbaya	344	35.9	16.1	0.0	6.8	16.0	41.9
Mboum	741	24.0	15.6	0.0	1.3	3.6	13.0
Other Adamaoua	257	40.2	15.6	0.0	8.0	13.3	32.8
Momo	332	36.5	18.2	0.0	10.7	27.6	61.7
Ngemba	484	38.9	19.3	4.0	12.3	25.4	69.3
Ring	511	39.7	19.3	8.8	15.4	32.6	64.5
Wimbum/Yamba	244	30.9	18.3	15.8	15.5	30.2	59.1
Other Western	516	46.5	17.9	0.0	13.6	29.1	61.9
Bamoun	599	53.7	16.6	0.0	5.6	15.1	36.4
Bamilike	3,275	75.4	18.8	1.3	7.0	16.4	58.4

Continued…

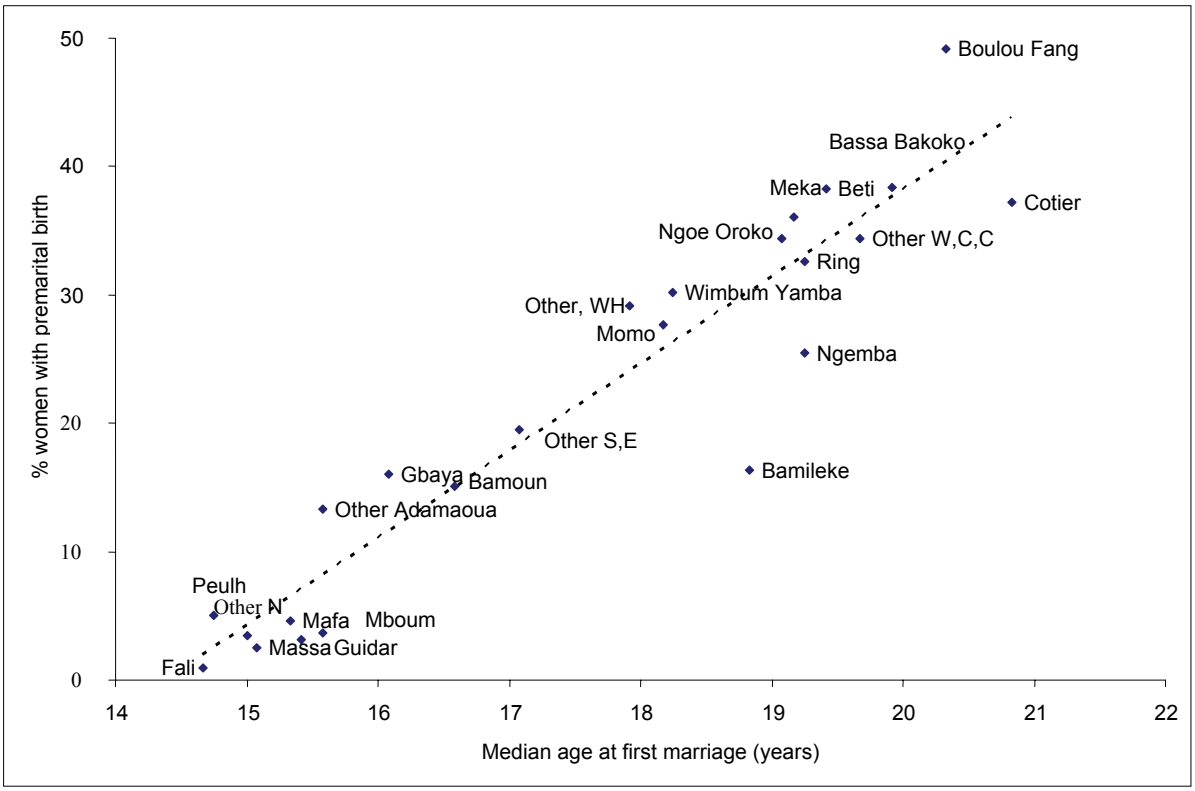
Table 3—*Continued*

Ethnic group	Number of women surveyed	Percent urban	Median age at first marriage (years)	Percent age 40-49 never married	Percent premarital births	Percent women with premarital birth	Percent premarital inter-course
Cotier/Douala	284	73.1	20.8	2.9	19.8	37.2	76.9
Ngoe-Oroko	491	40.7	19.1	3.5	17.4	34.4	68.0
Bassa-Bakoko	899	67.8	19.9	1.4	18.7	38.4	75.2
Beti	1,784	51.0	19.4	2.1	18.7	38.2	74.3
Other Central Coast	466	58.3	19.7	7.4	17.7	34.4	67.4
Boulou/Fang	733	44.3	20.3	0.0	26.2	49.1	79.2
Meka	484	30.0	19.2	0.0	16.2	36.1	74.5
Other South, East	219	24.6	17.1	0.0	8.6	19.5	59.3
Other and unknown	485	52.7	16.5	0.0	5.6	14.8	39.0
Total	16,157	48.1	17.8	1.4	8.9	20.4	48.3

Source: Authors' calculations after merging data from 1998 and 2004 DHS surveys.

Correlations of the prevalence of premarital fertility with age at marriage (p = 0.942) and premarital sex (p = 0.955) were high, and the distribution of ethnic groups according to median age at marriage was basically linear (Figure 1). Correlation with urban residence was much lower (ρ = 0.488), and most of the differences could be attributed to differences in cultural patterns.

Figure 1 Correlation between premarital fertility and age at first marriage, Cameroon



CENTRAL AFRICAN REPUBLIC

The Central African Republic (CAR) conducted only one DHS survey, in 1994. Ethnicity was defined as the main language spoken at home (V131). The DHS survey coded nine ethnolinguistic group categories of African origin.

Table 1 Sample size and main characteristics of DHS surveys, CAR

CAR	DHS 1994
No. of women interviewed	5,884
No. of ethnic categories, African	9
Percent other and unknown	2.1

The distribution of ethnic groups is marked by two dominant groups (Gbaya, Banda) who account for more than half of the population, plus several groups common to Cameroon (Table 2).

Table 2 Distribution of ethnic groups in survey, CAR

Origin	Ethnolinguistic group	DHS 1994
African	Hausa/Haoussa	4.9
	Sara	6.1
	Mboum	6.9
	Gbaya	28.4
	Mandjia	8.7
	Banda	27.4
	Ngbaka-Bantou	6.6
	Yakoma-Sango	5.7
	Zande-Nzakara	3.2
Other	Other and unknown	2.1
Total		100.0

Premarital Fertility by Ethnicity

CAR has a medium age at first marriage (17.2 years), a low proportion of women who never marry (1.8 percent), and a moderate level of premarital fertility (5.9 percent for all births, 11.1 percent for women). Differentials in premarital fertility by ethnicity vary from 3.4 to 8.0 percent for all births, and from 6.6 to 16.8 percent for women.

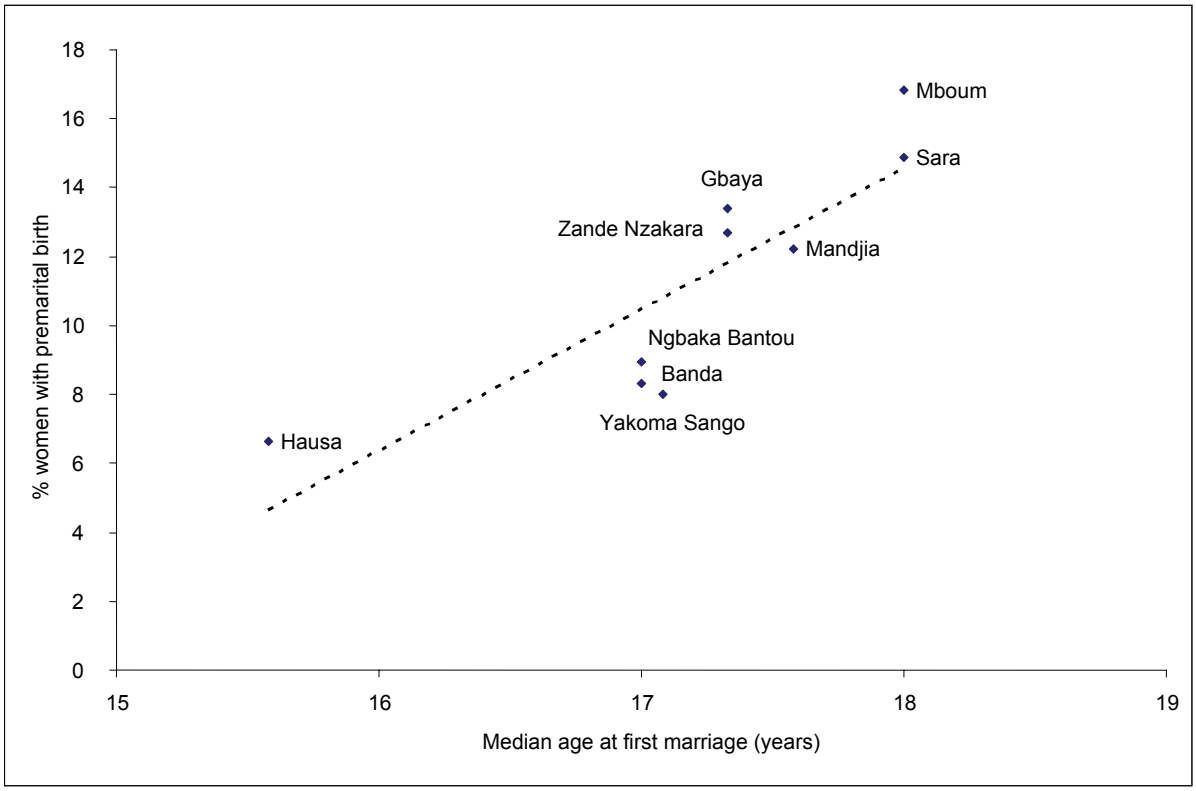
Correlation was negative with urban residence (-0.815), but positive with age at first marriage (+0.847). As in Cameroon, the relationship between age at marriage and the proportion of women with a premarital birth was straightforward, with the exception of the Hausa (Figure 1). However, premarital fertility and age at marriage were higher for the Mboum and Gbaya in CAR compared with their counterparts in Cameroon.

Table 3 Premarital fertility and nuptiality indicators, CAR

Ethnolinguistic group	Number of women surveyed	Percent urban	Median age at first marriage (years)	Percent age 40-49 never married	Percent premarital births	Percent women with premarital birth	Percent premarital intercourse
Hausa	290	60.1	15.6	0.0	3.4	6.6	26.8
Sara	361	40.5	18.0	4.4	7.7	14.9	47.8
Mboum	405	27.7	18.0	0.0	7.9	16.8	51.7
Gbaya	1,673	35.5	17.3	3.1	7.2	13.4	53.7
Mandjia	513	49.5	17.6	1.0	6.9	12.2	49.1
Banda	1,610	40.8	17.0	1.5	4.1	8.3	44.6
Ngbaka-Bantou	389	50.8	17.0	0.0	4.1	8.9	47.3
Yakoma-Sango	335	64.3	17.1	0.0	4.4	8.0	42.0
Zande-Nzakara	191	44.0	17.3	6.4	8.0	12.7	47.3
Other and unknown	117	57.6	17.5	0.0	3.5	4.7	34.1
Total	5,884	42.6	17.2	1.8	5.9	11.1	47.5

Source: Authors' calculations from 1994 DHS survey.

Figure 1 Correlation between premarital fertility and age at first marriage, Central African Republic



CHAD

Chad conducted only one DHS survey, in 1997. Ethnicity was defined as the main language spoken at home (V131). The DHS survey coded 12 ethnolinguistic group categories of African origin.

Table 1 Sample size and main characteristics of DHS survey, Chad

Chad	DHS 1997
No. of women interviewed	7,454
No. of ethnic categories, African	12
Percent other and unknown	2.1

All groups were kept for final analysis, after grouping "other and unknown" (Table 2).

Table 2 Distribution of ethnic groups in DHS survey, Chad

Origin	Ethnolinguistic group	DHS 1997
African	Gorane	5.2
	Arab	10.4
	Ouaddai	12.1
	Baguirmien	1.5
	Kanem-Bornou	9.5
	Fitri-Batha	6.0
	Hadjarai	5.4
	Lac Iro	1.0
	Sara	29.1
	Tandjile	6.0
	Peulh	1.9
	Kebbi	9.7
Others	Other and unknown	2.1
	Total	100.0

Premarital Fertility by Ethnicity

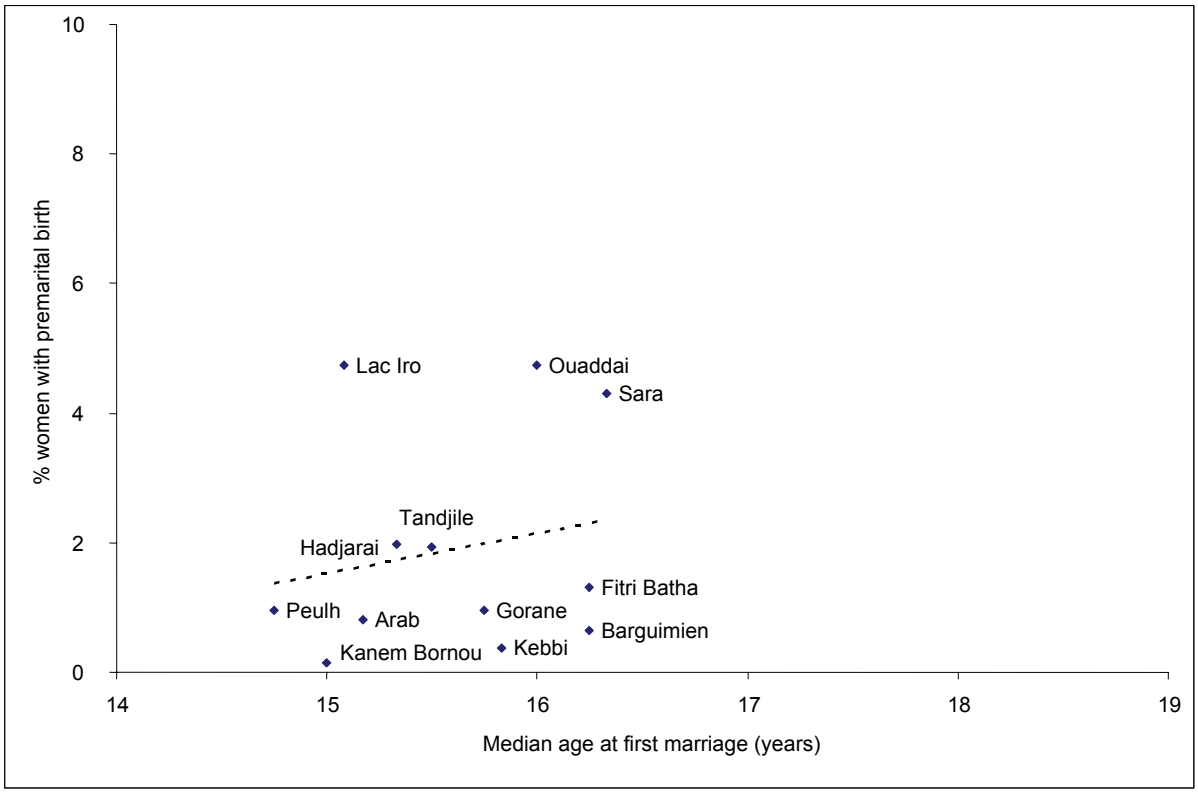
Chad is a relatively homogenous country with a low age at first marriage (15.8 years), a low proportion of women who never marry (<0.1 percent), and a low level of premarital fertility (0.8 percent for all births, 2.4 percent for women). Differentials in premarital fertility by ethnicity do not vary much (from 0.1 to 1.7 percent for all births, and from 0.2 to 4.7 percent for women). The prevalence of premarital intercourse was somewhat higher (17.2 percent), though still low by African standards. Correlation of premarital fertility with age at first marriage was low (ρ = +0.197), and correlation with urban residence was negative (ρ = -0.431).

Table 3 Premarital fertility and nuptiality indicators, Chad

Ethnolinguistic group	Number of women surveyed	Percent urban	Median age at first marriage (years)	Percent age 40-49 never married	Percent premarital births	Percent women with premarital birth	Percent premarital intercourse
Gorane	453	41.4	15.8	0.0	0.3	0.9	12.7
Arab	831	29.6	15.2	0.0	0.4	0.8	12.6
Ouaddai	819	14.2	16.0	0.0	1.6	4.7	18.9
Baguirmien	131	37.0	16.3	0.0	0.2	0.6	17.4
Kanem-Bornou	698	20.4	15.0	0.0	0.1	0.2	6.7
Fitri-Batha	455	22.7	16.3	0.0	0.6	1.3	15.3
Hadjarai	433	29.3	15.3	0.0	0.5	2.0	19.0
Lac Iro	66	11.4	15.1	0.0	1.7	4.7	42.1
Sara	2,180	24.1	16.3	0.0	1.3	4.3	24.2
Tandjile	416	16.4	15.5	0.0	0.5	1.9	18.5
Peulh	142	25.1	14.8	0.0	0.2	1.0	12.5
Kebbi	641	11.7	15.8	0.0	0.1	0.4	11.4
Other and unknown	189	43.9	15.2	2.7	0.9	2.0	14.1
Total	7,454	23.1	15.8	0.1	0.8	2.4	17.2

Source: Authors' calculations from 1997 DHS survey.

Figure 1 Correlation between premarital fertility and age at first marriage, Chad



CÔTE D'IVOIRE

Côte d'Ivoire conducted a WFS survey in 1980 and two DHS surveys in 1994 and 1999 (Table 1). The WFS survey included 16 ethnic groups and five larger language families. The 1994 DHS survey included 50 detailed ethnic groups plus many categories for foreigners by country of origin. Unfortunately, labels for these 50 detailed ethnic groups were not provided in the codebook, rendering them unusable. The 1999 survey, which was based on a small sample, provided only the five larger language families, which, fortunately, happened to be the same as in the 1980 survey. We therefore combined the 1980 and the 1999 surveys for final analysis. Côte d'Ivoire being a country of in-migration, the proportion of foreigners was high.

Table 1 Sample size and main characteristics of surveys, Côte d'Ivoire

Côte d'Ivoire	WFS 1980	DHS 1994	DHS 1999
No. of women interviewed	5,764	8,099	3,040
No. of ethnic categories, local	16	50	--
No. of ethnic categories, foreign	1	13	1
Large ethnolinguistic families	5	--	5
Percent foreigner	24.4	22.2	22.2
Percent other and unknown	0.3	0.2	0

Differences in the distribution of large ethnolinguistic families between the two surveys were minor, though three of them were statistically significant (Table 2). However, these minor differences could not impact the final estimates based on the combined data sets.

Table 2 Distribution of ethnic groups by survey, Côte d'Ivoire

Ethnic group	WFS 1980	DHS 1999	Difference between the two surveys: P-value	Difference between the two surveys: Significance
Akan	29.1	29.8	0.495	
Krou	13.3	11.0	0.002	*
Mande North	12.0	12.1	0.932	
Mande South	9.7	10.3	0.395	
Voltaic	11.1	14.6	0.000	*
Other and unknown	24.8	22.2	0.008	*
Total	100.0	100.0		

*p <0.05

Premarital Fertility by Ethnicity

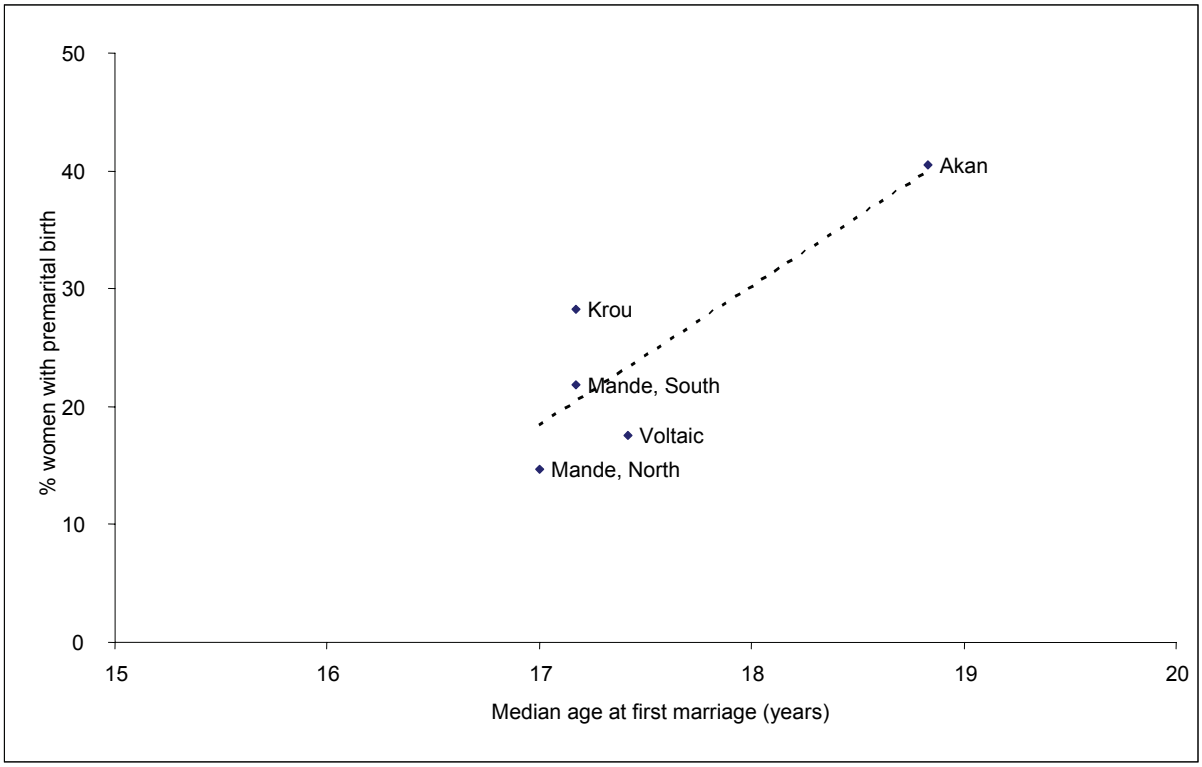
In Côte d'Ivoire, the level of urban residence is average, and age at marriage is medium, around 17.7 years. However, premarital fertility varies markedly, between 5.0 and 18.7 percent for all births and between 14.6 and 40.5 percent for women. A majority of first sexual encounters are premarital, ranging from 48.2 to 80.1 percent by ethnic group. Correlation of premarital fertility with urban residence was small (0.295), but was much higher with age at first marriage (0.856). However, most of the correlation was due to the special situation of the Akan group, which has much higher age at marriage and higher premarital fertility than the other groups (Figure 1).

Table 3 Premarital fertility and nuptiality indicators, Côte d'Ivoire

Ethnolinguistic group (large family)	Number of women surveyed	Percent urban	Median age at first marriage (years)	Percent age 40-49 never married	Percent premarital births	Percent women with premarital birth	Percent premarital intercourse
Akan	2,626	45.6	18.8	0.5	18.7	40.5	79.6
Krou	1,123	50.7	17.2	0.9	10.9	28.3	80.1
Mande North	1,095	49.5	17.0	0.0	5.0	14.6	46.9
Mande South	811	24.0	17.2	0.0	8.1	21.9	68.0
Voltaic	1,029	30.3	17.4	0.0	6.0	17.5	48.2
Other and unknown	2,120	44.5	17.3	1.0	4.9	11.8	39.1
Total	8,804	41.9	17.7	0.5	10.2	23.9	61.1

Source: Authors' calculations after merging data from 1980 and 1999 surveys.

Figure 1 Correlation between premarital fertility and age at first marriage, Côte d'Ivoire



ETHIOPIA

Ethiopia conducted a single DHS survey in 2000 (Table 1). The survey included 50 ethnic groups (V131), with virtually no unknowns, which covers a large proportion of the 79 languages ever recorded in the country. Unfortunately, the labels of the ethnic groups were not provided in the DHS codebook.

Table 1 Sample size and main characteristics of DHS survey, Ethiopia

Ethiopia	DHS 2000
No. of women interviewed	15,367
No. of ethnic categories, local	50
Language of respondent	8
Percent other and unknown	0.1

However, the language of the respondent was recorded (SRESP), and could be matched with the ethnic group variable, which allowed the identification of main ethnic groups. The final list therefore included 12 ethnic groups, which accounted for some 90 percent of the population (Table 2).

Table 2 Distribution of ethnic groups in survey, Ethiopia

Ethnic group	DHS 2000
Amara	31.8
Oromo	34.6
Tigraway	6.7
Somali	1.2
Gedeo	5.4
Afar	0.8
Anuak	0.1
Sidama	3.9
Weleyta	2.2
Hadayya	0.2
Gurage	1.8
Kafa	1.4
Other and unknown	10.0
Total	100.0

Premarital Fertility by Ethnicity

Premarital fertility is low in Ethiopia, with a prevalence of 0.9 percent for all births and 2.7 percent for women (Table 3). This is because of a variety of factors, including low median age at first marriage (16.1 years), low prevalence of premarital intercourse (10.9 percent), and low urban residence (18.2 percent).

Table 3 Premarital fertility and nuptiality indicators, Ethiopia

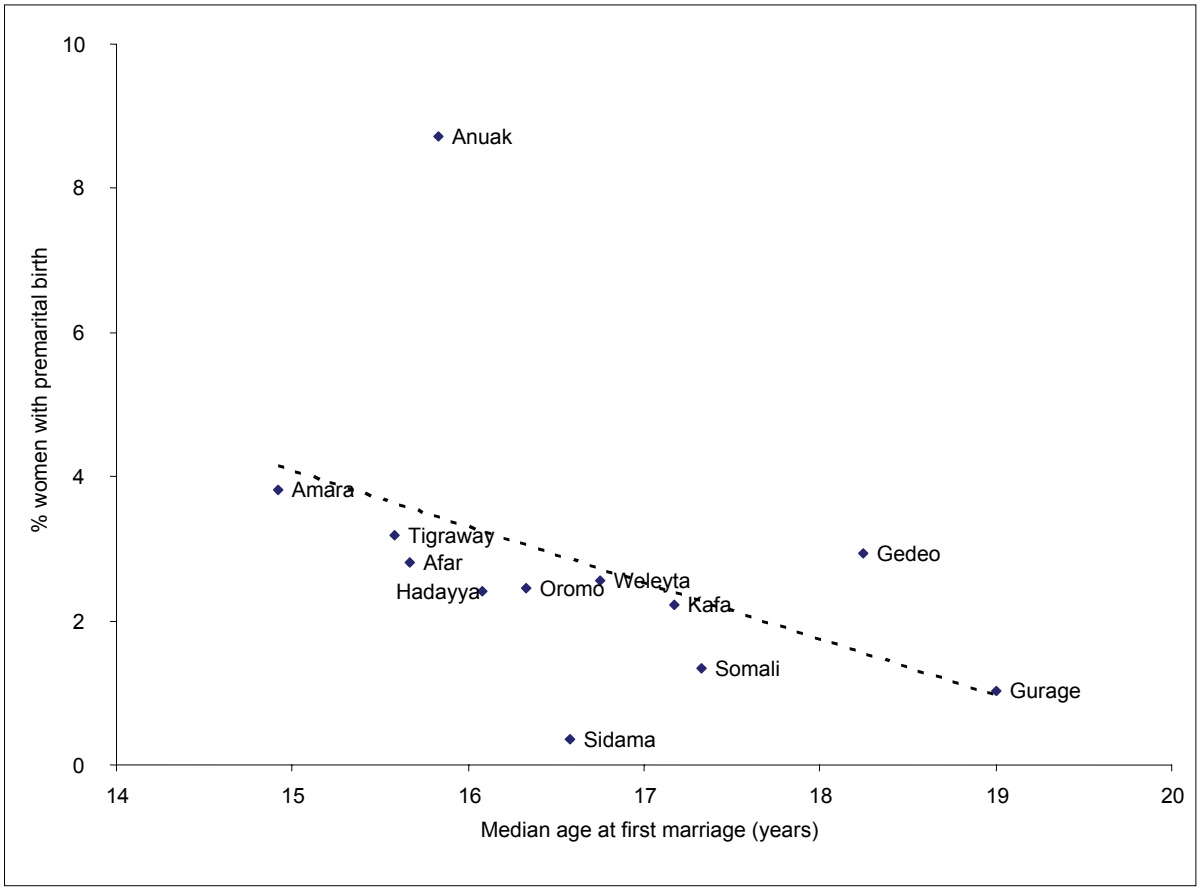
Ethnolinguistic group (large family)	Number of women surveyed	Percent urban	Median age at first marriage (years)	Percent age 40-49 never married	Percent premarital births	Percent women with premarital birth	Percent premarital intercourse
Amara	4,431	26.0	14.9	0.1	1.2	3.8	16.9
Oromo	4,161	13.3	16.3	0.4	0.9	2.4	6.3
Tigraway	1,483	29.5	15.6	1.0	1.0	3.2	20.0
Somali	785	28.9	17.3	0.0	0.5	1.3	1.6
Gedeo	862	26.1	18.3	0.2	1.1	2.9	9.3
Afar	585	6.4	15.7	0.0	1.6	2.8	2.3
Anuak	363	20.0	15.8	0.0	3.2	8.7	23.8
Sidama	355	0.7	16.6	0.0	0.1	0.3	5.3
Weleyta	230	13.4	16.8	0.0	0.8	2.6	5.9
Hadayya	211	13.8	16.1	0.0	0.8	2.4	9.6
Gurage	209	15.3	19.0	0.0	0.2	1.0	5.8
Kafa	207	7.3	17.2	0.0	0.5	2.2	13.4
Other and unknown	1,485	7.7	17.3	0.0	0.3	1.0	5.3
Total	15,367	18.2	16.1	0.2	0.9	2.7	10.9

Source: Authors' calculations from 2000 DHS survey.

Differences between ethnic groups were small given the low level of premarital fertility. In virtually all groups, premarital fertility was very low (<4 percent). The exception was the Anuak, a small group living in the marshland area of Gambela province. The province has a marginal position in the country and has recently been subject to discrimination and violence. The Anuak had somewhat higher premarital fertility despite low age at marriage (15.8 years). This is probably because of the higher prevalence of premarital intercourse (23.8 percent versus 10.9 percent for the country as a whole).

Correlation with age at first marriage was slightly negative (ρ = -0.339), which is unusual and is found in only a few countries. Correlation with urban residence was virtually nil (ρ = -0.067).

Figure 1 Correlation between premarital fertility and age at first marriage, Ethiopia



GABON

Gabon conducted only one DHS survey, in 2000. Ethnicity was defined as the main language spoken at home (V131). The DHS survey coded eight ethnolinguistic group categories of African origin. The large proportion of other and unknown is due to a large group of foreigners (17.9 percent of the sample).

Table 1 Sample size and main characteristics of DHS survey, Gabon

Gabon	DHS 2000
No. of women interviewed	6,183
No. of ethnic categories, African	8
Percent other and unknown	19.6

Although the ethnic groups were of unequal size, seven of them were large enough to be counted (Table 2). The Pygmy group was too small to be analyzed separately, and was merged with the "other and unknown" category in the final analysis.

Table 2 Distribution of ethnic groups in survey, Gabon

Origin	Ethnolinguistic group	DHS 2000
African	Fang	25.2
	Kota-Kele	6.5
	Mbede-Teke	8.3
	Myene	4.7
	Nzabi-Duma	10.6
	Okande-Tsogho	2.9
	Shira-Punu/Vili	22.2
	Pygmy	0.1
Foreign		17.9
	Other and unknown	1.7
	Total	100.0

Premarital Fertility by Ethnicity

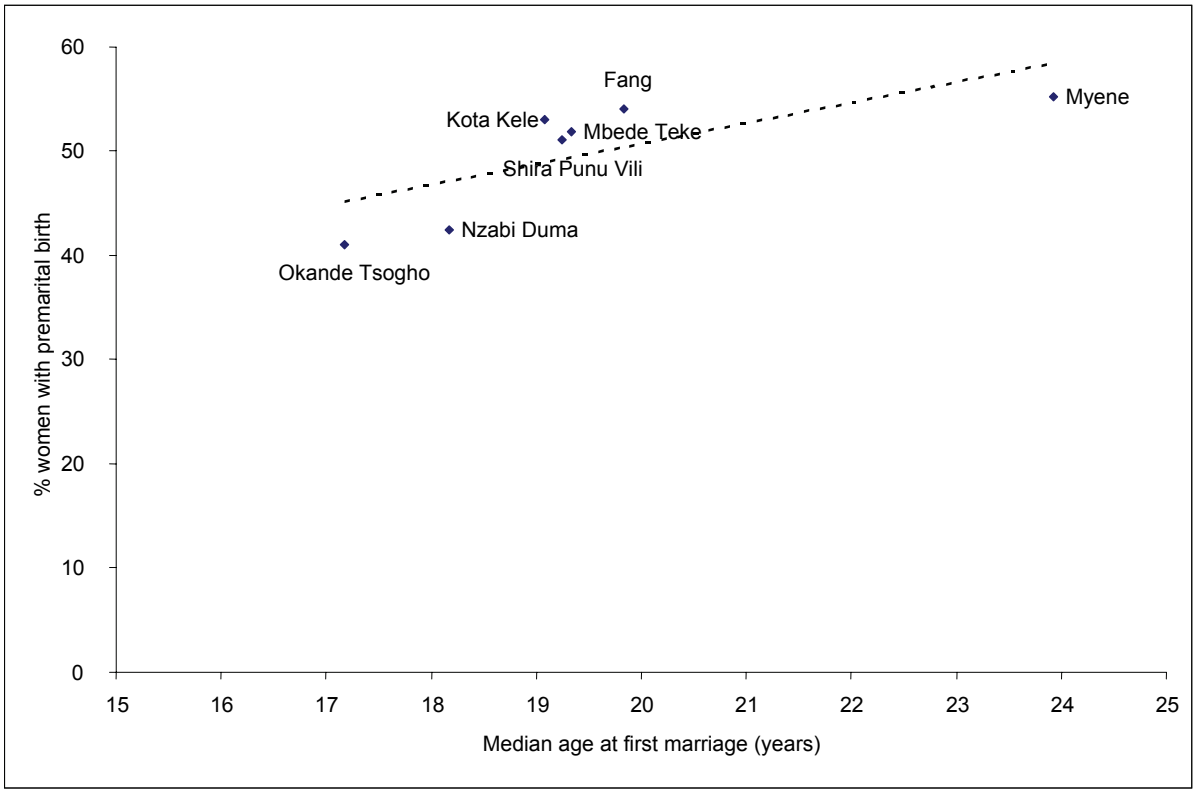
Gabon has a high level of urban residence, high age at first marriage, and high level of premarital fertility, with little variation by ethnic group. Differentials in premarital fertility by ethnicity vary from 17.6 to 37.9 percent for all births, and from 41.0 to 55.2 percent for women. Although urban residence was high for all groups, the more urbanized groups had higher premarital fertility, with a positive correlation of 0.682. Age at first marriage is universally high, with a positive correlation of 0.735. A large majority of first intercourse is premarital (74.0), with minor differences by ethnic group.

Table 3 Premarital fertility and nuptiality indicators, Gabon

Ethnolinguistic group	Number of women surveyed	Percent urban	Median age at first marriage (years)	Percent age 40-49 never married	Percent premarital births	Percent women with premarital birth	Percent premarital intercourse
Fang	1,372	82.9	19.8	3.6	31.0	54.1	78.6
Kota-Kele	491	60.3	19.1	3.9	27.6	53.0	78.9
Mbede-Teke	642	82.1	19.3	5.9	30.2	51.8	78.4
Myene	190	96.9	23.9	4.2	37.9	55.2	80.1
Nzabi-Duma	783	74.5	18.2	0.0	21.7	42.4	73.0
Okande-Tsogho	266	43.4	17.2	0.0	17.6	41.0	66.2
Shira-Punu/Vili	1,428	78.7	19.3	3.4	26.8	51.1	74.9
Other and unknown	1,011	88.6	20.3	2.7	19.6	30.3	64.2
Total	6,183	80.2	19.6	3.1	26.4	46.7	74.0

Source: Authors' calculations from 2000 DHS survey.

Figure 1 Correlation between premarital fertility and age at first marriage, Gabon



GHANA

Ghana conducted one WFS survey in 1979 and four DHS surveys, in 1988, 1993, 1999 and 2003 (Table 1). The WFS survey and the 1988 DHS survey each coded the same 7 ethnic groups; the 1993 DHS survey coded 11 groups; the 1999 DHS survey coded 12 groups, 11 of which were identical to the previous survey; and the 2003 DHS survey coded 8 groups. The proportion of "other and unknown" was lowest in 1993 and 1999, due to the more detailed categories.

Table 1 Sample size and main characteristics of surveys, Ghana

Ghana	WFS 1979	DHS 1988	DHS 1993	DHS 1999	DHS 2003
No. of women interviewed	6,125	4,488	4,562	4,843	5,691
No. of ethnic categories, African	7	7	11	11	8
Percent other and unknown	10.1	8.9	3.2	2.1	6.5

For final analysis, the 1993 and the 1999 DHS surveys were combined since they offered the greatest number of groups and the smallest number of "other and unknown." Overall, the distribution of ethnic groups was similar in the two surveys, though not identical (Table 2).

Table 2 Distribution of ethnic groups by survey, Ghana

Ethnic group	DHS 1993	DHS 1999	Difference between the two DHS surveys: P-value	Difference between the two DHS surveys: Significance
Asante	16.2	15.9	0.676	
Akwapim	3.2	4.1	0.025	*
Fante	12.1	14.1	0.004	*
Other Akan	18.1	19.5	0.083	
Ga-Adangbe	8.0	8.3	0.606	
Ewe	14.9	15.8	0.207	
Guan	2.2	1.5	0.015	*
Mole-Dagbani	15.6	6.8	0.000	*
Grussi	3.5	2.5	0.003	*
Gruma	2.3	5.4	0.000	*
Hausa/Haoussa	0.7	1.4	0.001	*
Dagarti		2.5	na	na
Other and unknown	3.2	2.1	na	na
Total	100.0	100.0	9.0E-115	*

*p <0.05
na = Not applicable

The Mole Dagbani group was lower in the second survey, partly because a new group emerged (Dagarti), with which it was probably combined in 1993. For final analysis, the Hausa group was dropped because it was too small (less than 100 women in the two surveys combined), but the Dagarti group was kept, because it was large enough, and had the lowest premarital fertility.

Premarital Fertility by Ethnicity

Premarital fertility in Ghana is low by African standards, with a prevalence of 4.0 percent for all births and 9.4 percent for women. This is despite a medium age at first marriage (18.9 years) and a high prevalence of premarital intercourse (57.4 percent) (Table 3).

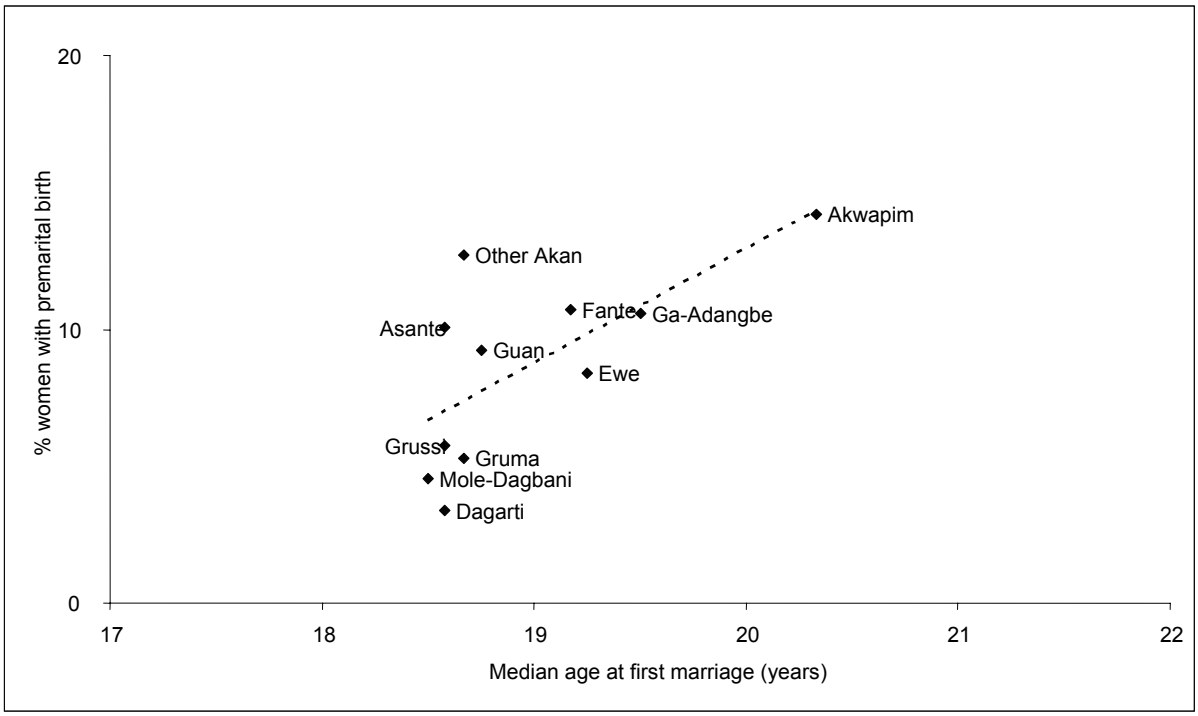
Table 3 Premarital fertility and nuptiality indicators, Ghana

Ethnolinguistic group	Number of women surveyed	Percent urban	Median age at first marriage (years)	Percent age 40-49 never married	Percent premarital births	Percent women with premarital birth	Percent premarital intercourse
Asante	1,412	39.8	18.6	0.0	4.7	10.1	60.2
Akwapim	319	46.0	20.3	0.0	6.9	14.2	66.5
Fante	1,127	48.8	19.2	0.0	4.7	10.7	61.0
Other Akan	1,650	33.7	18.7	0.8	5.7	12.7	65.5
Ga-Adangbe	708	60.5	19.5	3.6	4.9	10.6	67.0
Ewe	1,325	33.6	19.3	0.0	3.6	8.4	65.0
Guan	170	34.5	18.8	0.0	3.5	9.2	51.3
Mole-Dagbani	1,220	21.3	18.5	0.0	1.6	4.5	33.6
Grussi	363	20.9	18.6	0.0	1.9	5.7	43.4
Gruma	480	12.2	18.7	0.0	1.8	5.3	38.4
Dagarti	288	15.3	18.6	0.0	1.0	3.4	23.3
Other and unknown	343	42.5	18.6	0.0	3.1	7.4	51.8
Total	9,405	36.8	18.9	0.4	4.0	9.4	57.4

Source: Authors' calculations after merging data from 1993 and 1999 DHS surveys.

Differentials in premarital fertility by ethnicity were moderate, ranging from 3.4 percent (Dagarti) to 14.2 percent (Akwapim). Correlation with age at first marriage was high (0.669); the prevalence of premarital intercourse was high (0.911); and correlation with urban residence was high (0.795). The ethnic groups in northern Ghana (Mole-Dagbani, Grussi, Gruma, Dagarti) had lower age at marriage, lower prevalence of premarital intercourse, lower premarital fertility, and lower urban residence compared with those in the south. The Akwapim stand out with the highest level of premarital fertility and the highest age at marriage. They also have high prevalence of premarital intercourse, although they are not the most urbanized ethnic group.

Figure 1 Correlation between premarital fertility and age at first marriage, Ghana



GUINEA

Guinea conducted two DHS surveys, in 1992 and 1999. However, access to the 1992 survey was restricted. In 1999, ethnicity was defined as the main language spoken at home (V131). The DHS survey coded six ethnolinguistic group categories of African origin (Table 1).

Table 1 Sample size and main characteristics of DHS surveys, Guinea

Guinea	DHS 1992	DHS 1999
No. of women interviewed	6,065	7,143
No. of ethnic categories, African	na	6
Percent other and unknown	na	1.6

na = Not applicable

Three groups were dominant in the country: the Peulh, the Soussou and the Malinke. The other three were much smaller, although they still had enough cases of women interviewed to be analyzed separately (Table 2).

Table 2 Distribution of ethnic groups in survey, Guinea

Origin	Ethnolinguistic group	DHS 1999
African	Sousou	19.8
	Peulh	35.9
	Malinke	27.8
	Kissi	5.0
	Toma	2.6
	Guerze	7.3
Other	Other and unknown	1.6
	Total	100.0

Premarital Fertility by Ethnicity

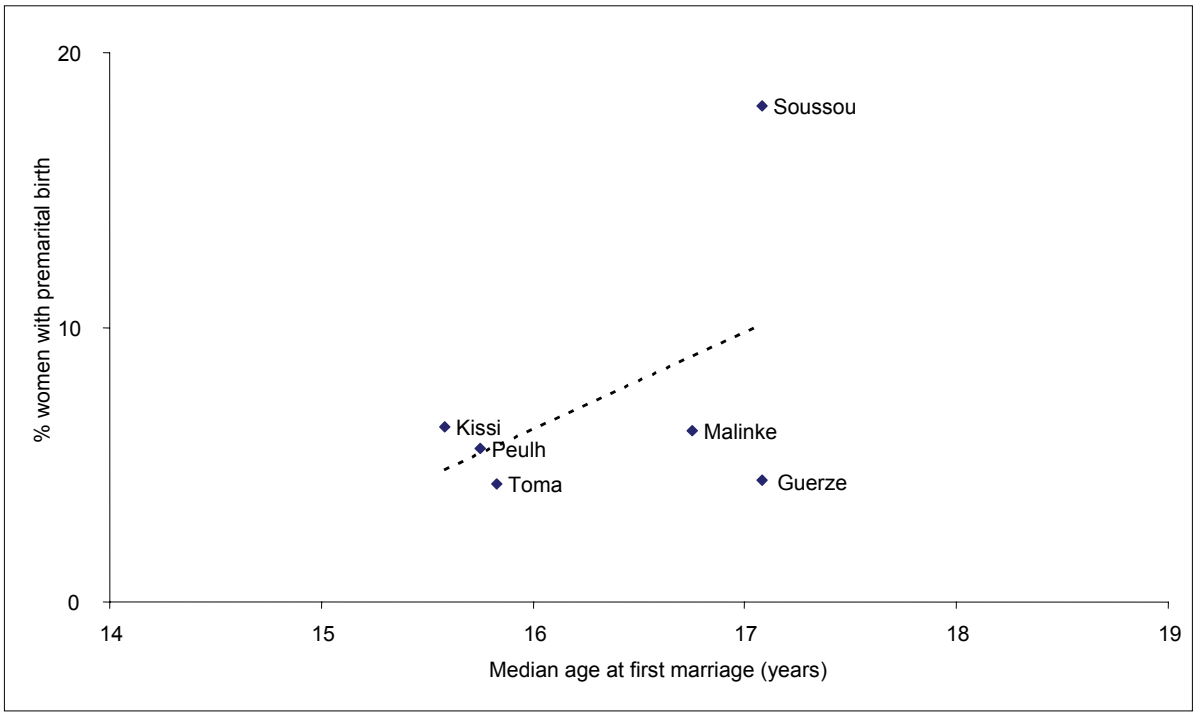
Guinea has a low median age at first marriage (16.4 years), a low proportion of women who never marry (0.1 percent), and a low level of premarital fertility (3.3 percent for all births, 8.1 percent for women). Differentials in premarital fertility by ethnicity vary from 1.3 to 7.2 percent for all births, and from 4.3 to 18.1 percent for women. The prevalence of premarital intercourse is low, varying from 12 to 37 percent. The only group that stands out is the Soussou, which have the highest level of urban residence. Correlation of premarital fertility with urban residence is high (0.871), whereas correlation with age at marriage is low. This is because the Soussou marry at about the same age as other groups (Malinke, Guerze) that have much lower premarital fertility.

Table 3 Premarital fertility and nuptiality indicators, Guinea

Ethnolinguistic group	Number of women surveyed	Percent urban	Median age at first marriage (years)	Percent age 40-49 never married	Percent premarital births	Percent women with premarital birth	Percent premarital intercourse
Sousou	1,389	50.4	17.1	0.0	7.2	18.1	37.1
Peulh	2,222	25.2	15.8	0.0	2.4	5.6	11.7
Malinke	1,985	34.2	16.8	0.3	2.5	6.2	24.8
Kissi	353	21.8	15.6	0.0	2.9	6.4	22.1
Toma	180	8.0	15.8	0.0	1.3	4.3	23.9
Guerze	511	19.9	17.1	0.0	1.8	4.5	37.9
Other and unknown	113	53.3	16.3	0.0	4.1	11.0	36.4
Total	6,753	32.2	16.4	0.1	3.3	8.1	23.5

Source: Authors' calculations from 1999 DHS survey.

Figure 1 Correlation between premarital fertility and age at first marriage, Guinea



KENYA

Kenya has a great wealth of high-quality demographic data: a WFS survey in 1978 and four DHS surveys, in 1988, 1993, 1998, and 2003, all of about the same sample size (Table 1). The WFS survey contained more details on ethnic groups with 42 distinct categories, but did not include what became one of the leading groups later on, the Kalenjin. However, the other categories were compatible with those of the DHS surveys.

Table 1 Sample size and main characteristics of surveys, Kenya

Kenya	WFS 1978	DHS 1988	DHS 1993	DHS 1998	DHS 2003
No. of women interviewed	8,093	7,150	7,540	7,881	8,195
No. of ethnic categories, African	42	9	10	11	14
Percent other and unknown	1.0	6.7	4.8	2.9	1.4

The four DHS surveys were quite compatible, with basically the same groups. We chose to combine the last three surveys (1993, 1998, and 2003), because this provided the opportunity to include three small but important groups: the Masai, the Somali, and the Taita/Taveta. The Masai and the Taita/Taveta were not detailed in the 1988 survey. Cumulating the three surveys gave more than 250 women for these small groups. Note that the Masai were not detailed in 1993, but were in a large enough number in the last two surveys combined.

Table 2 Distribution of ethnic groups by survey, Kenya

Origin	Ethnolinguistic group	DHS 1993	DHS 1998	DHS 2003
African	Kalenjin	11.7	12.6	10.1
	Kamba	13.5	12.8	11.4
	Kikuyu	20.6	17.9	23.0
	Kisii	7.2	10.9	5.7
	Luhya	16.1	14.5	15.0
	Luo	11.4	13.6	12.0
	Masai	na	1.4	2.3
	Meru/Embu	6.9	7.2	7.2
	Mijikenda/Swahili	6.5	5.0	5.0
	Somali	0.3	0.2	3.6
	Taita/Taveta	1.1	1.0	1.2
Other	Other and unknown	4.8	2.9	3.4
	Total	100.0	100.0	100.0

na = Not applicable

The consistency of ethnicity data was remarkable, and most likely the five surveys could have been combined if necessary (Table 2). Ethnicity was defined as the main language spoken at home (V131). The distribution of women 15-49 by main ethnolinguistic groups was similar in the three selected surveys. Only a few differences were statistically significant, but without consequence. Kalenjin and Kisii were somewhat over-represented and Kikuyu somewhat underrepresented in 1998, while none of the other groups were significantly different from the average in 1993 and 2003.

Premarital Fertility by Ethnicity

Kenya is a country with relatively high age at first marriage (19.1 years), a low proportion of women who never marry (2.7 percent), and a high level of premarital fertility (11.2 percent for all births, 30.7 percent for women). Differentials in premarital fertility by ethnicity were marked for all births (2.3 to 16.6 percent), and for women (7.7 to 40.5 percent). The prevalence of premarital intercourse was high (65.7 percent), with marked differences among the ethnic groups, from 6.7 percent to 77.8 percent.

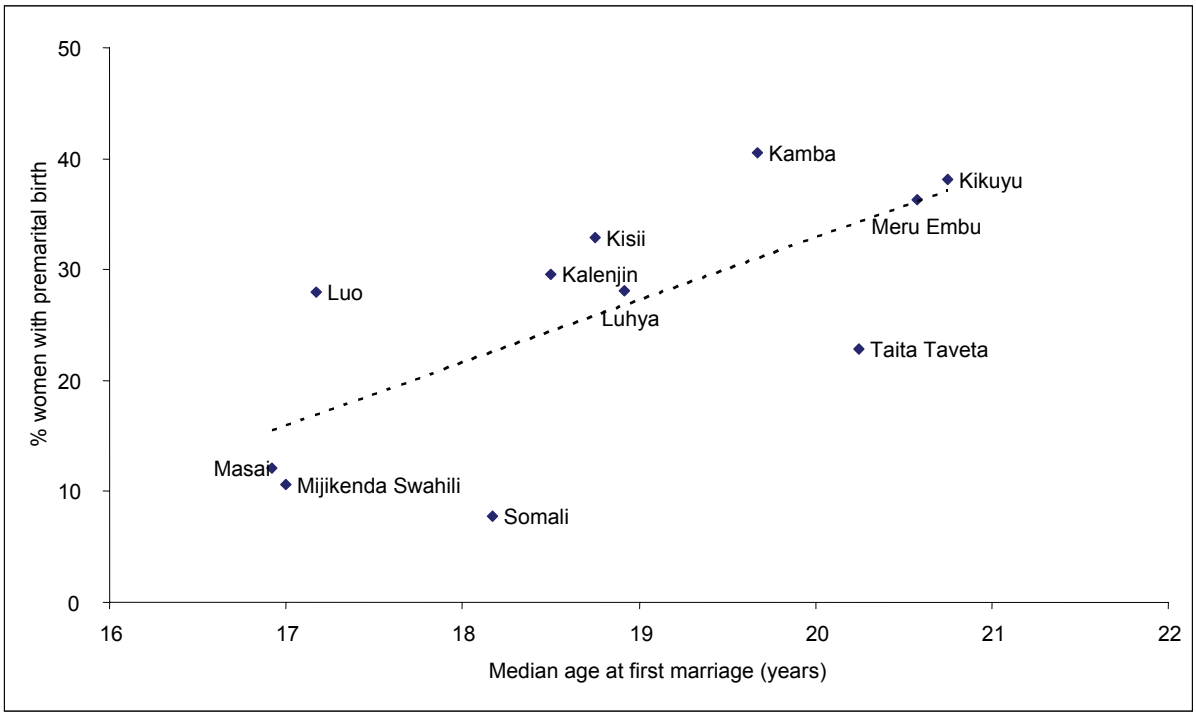
Table 3 Premarital fertility and nuptiality indicators, Kenya

Ethnolinguistic group	Number of women surveyed	Percent urban	Median age at first marriage (years)	Percent age 40-49 never married	Percent premarital births	Percent women with premarital birth	Percent premarital intercourse
Kalenjin	3,055	5.6	18.5	2.0	11.1	29.5	54.3
Kamba	2,402	20.9	19.7	2.4	15.0	40.5	77.8
Kikuyu	4,738	30.7	20.8	6.3	16.6	38.1	73.6
Kisii	1,648	11.6	18.8	1.3	10.7	32.9	67.7
Luhya	3,498	21.9	18.9	1.1	9.0	28.1	66.1
Luo	2,745	29.8	17.2	0.3	8.6	27.9	74.9
Masai	232	4.0	16.9	0.8	4.0	12.1	53.3
Meru/Embu	1,428	13.7	20.6	3.9	14.3	36.3	75.3
Mijikenda/Swahili	1,726	27.7	17.0	2.1	4.9	10.6	25.3
Somali	638	38.0	18.2	1.3	2.3	7.7	6.7
Taita/Taveta	702	30.0	20.3	8.8	9.0	22.9	51.8
Other and unknown	804	33.7	19.2	0.1	6.1	15.0	47.7
Total	23,616	22.1	19.1	2.7	11.2	30.7	65.7

Source: Authors' calculations after merging data from 1993, 1998, and 2003 DHS surveys.

Surprisingly, correlation of premarital fertility with urban residence was not significant, and even somewhat negative (-0.209), whereas correlation with age at first marriage was positive (0.692), a value comparable with other countries. Note that Kenya is primarily rural (78 percent in the samples).

Figure 1 Correlation between premarital fertility and age at first marriage, Kenya



LIBERIA

Liberia has conducted only one DHS survey, in 1986, with details on 16 ethnic groups and using a reasonable sample size (Table 1). Liberia is one of the rare African countries in which high premarital fertility has been documented, the highest in West Africa. We therefore pushed our analysis to its limits, including some ethnic groups with less than 250 women.

Table 1 Sample size and main characteristics of DHS survey, Liberia

Liberia	DHS 1986
No. of women interviewed	5,239
No. of ethnic categories, African	16
Percent other and unknown	4.3

Among the small groups, all were kept except the Belle (14 women), the Dey (23 women), and the Mande (35 women).

Table 2 Distribution of ethnic groups in survey, Liberia

Origin	Ethnolinguistic group	DHS 1986
African	Bassa	12.7
	Gbandi	2.8
	Gio	7.7
	Gola	4.6
	Grebo	7.3
	Kissi	3.6
	Kpelle	16.3
	Krahn	4.2
	Krou/Sapo	10.6
	Lorma	6.0
	Mandingue	6.1
	Mano	7.9
	Vai	3.8
Other	Other and unknown	6.6
	Total	100.0

Premarital Fertility by Ethnicity

Liberia has a medium age at first marriage (17.2 years), a low proportion of women who never marry (1.1 percent), and a high level of premarital fertility (13.0 percent for all births, 29.6 percent for women). Differentials in premarital fertility by ethnicity were small, from 8.0 to 16.8 percent for all births, and from 14.6 to 41.1 percent for women. The prevalence of premarital intercourse was high (68.4 percent on average, ranging from 53.1 to 77.9 percent), with only minor differences among ethnic groups.

Table 3 Premarital fertility and nuptiality indicators, Liberia

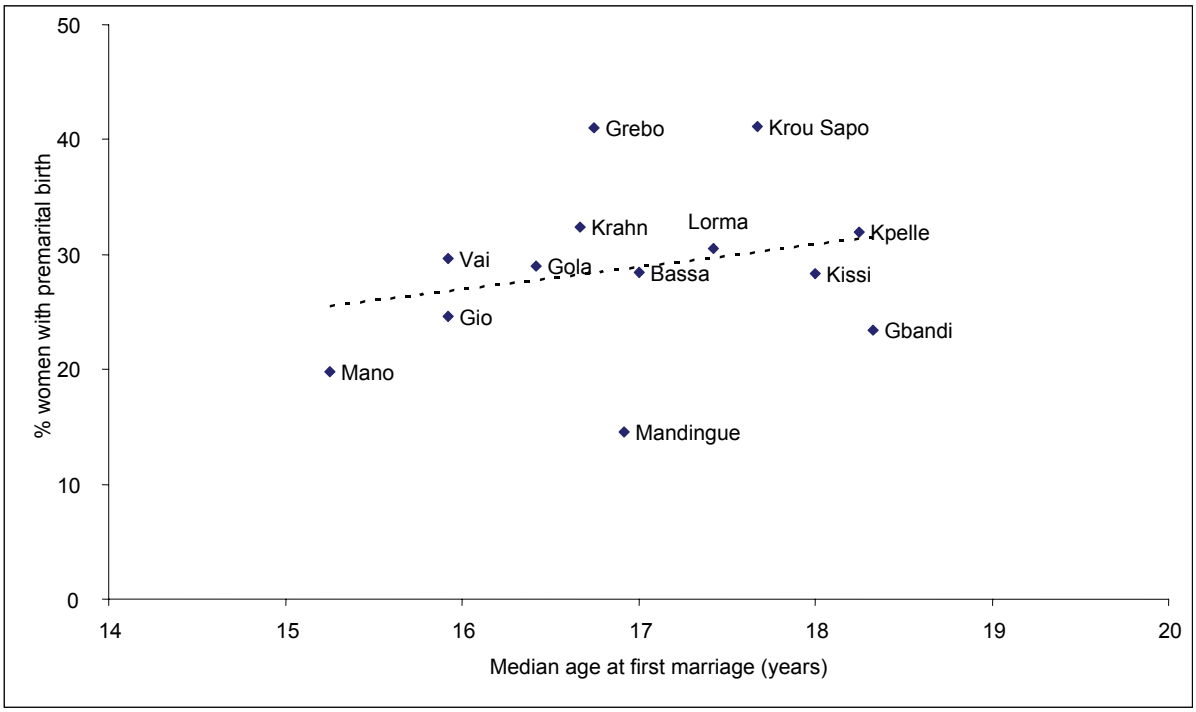
Ethnolinguistic group	Number of women surveyed	Percent urban	Median age at first marriage (years)	Percent age 40-49 never married	Percent premarital births	Percent women with premarital birth	Percent premarital intercourse
Bassa	490	43.4	17.0	1.5	14.1	28.4	65.8
Gbandi	109	19.4	18.3	0.0	11.9	23.5	65.8
Gio	294	26.5	15.9	0.0	11.7	24.6	60.0
Gola	177	36.7	16.4	0.0	11.2	29.0	68.2
Grebo	570	51.7	16.8	0.0	15.4	41.0	71.7
Kissi	137	55.8	18.0	0.0	12.3	28.3	68.5
Kpelle	661	31.4	18.3	2.4	12.6	31.9	77.9
Krahn	521	34.4	16.7	1.8	13.3	32.4	67.9
Krou/Sapo	1,039	60.1	17.7	3.0	16.8	41.1	76.6
Lorma	230	50.6	17.4	0.0	12.6	30.6	73.6
Mandingue	262	60.1	16.9	0.0	8.0	14.6	53.1
Mano	301	15.3	15.3	0.0	8.1	19.8	55.3
Vai	145	53.2	15.9	0.0	12.9	29.7	70.6
Other and unknown	303	73.6	18.9	0.0	16.0	30.8	68.2
Total	5,239	43.2	17.2	1.1	13.0	29.6	68.4

Source: Authors' calculations from 1986 DHS survey.

Correlation of premarital fertility with urban residence was small but positive, (p = +0.343), as was the correlation with age at first marriage (p = +0.252). Both values are much lower than those of other countries. Note that overall, Liberia is almost half urban (43.2 percent in the samples).

Two groups stand out with higher than expected premarital fertility: the Grebo and the Krou/Sapo. Urban residence is also higher for these groups. In contrast, two groups stand out with lower than expected premarital fertility: the Mandingue (Mandinka), who are primarily urban, and the Mano, who are primarily rural.

Figure 1 Correlation between premarital fertility and age at first marriage, Liberia



MALAWI

Malawi has conducted two DHS surveys, in 1992 and 2000. The first survey did not provide ethnicity, but the second provided nine ethnic groups with a large sample size (Table 1).

Table 1 Sample size and main characteristics of DHS surveys, Malawi

Malawi	DHS 1992	DHS 2000
No. of women interviewed	4,849	13,220
No. of ethnic categories, African	0	9
Percent other and unknown	-	2.7

Since the sample size was large enough in the 2000 survey, all ethnic groups were kept for final analysis (Table 2).

Table 2 Distribution of ethnic groups in survey, Malawi

Origin	Ethnolinguistic group	DHS 2000
African	Chewa	32.3
	Tumbuka	7.9
	Lomwe	18.2
	Tonga	1.8
	Yao	13.8
	Sena	4.0
	Nkonde	1.3
	Ngoni	12.6
	Amanganja/Anyanja	5.5
Other	Other and unknown	2.7
	Total	100.0

Premarital Fertility by Ethnicity

Malawi is a homogenous country with respect to nuptiality and fertility indicators. Age at first marriage ranges from 17.2 to 18.3 years, (average of 17.8 years) and the proportion of women who never marry is negligible (0.2 percent). Premarital fertility ranges from 2.3 to 5.1 percent for all births (average of 3.7 percent) and from 5.8 to 14.0 percent for women (average of 9.9 percent). The prevalence of premarital intercourse ranges from 32.1 to 47.0 percent (average of 39.4 percent).

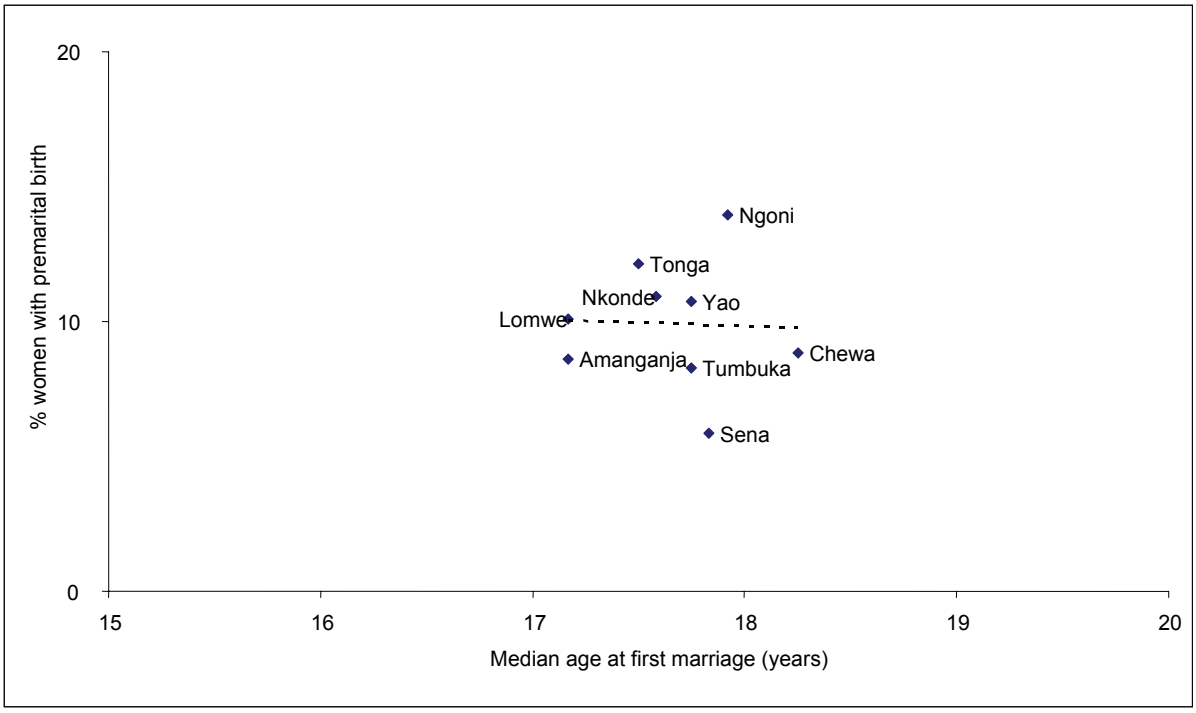
Unlike most African countries, premarital fertility in Malawi is not related to age at first marriage, and has only a moderate correlation with urban residence (ρ = 0.518). Two groups stand out from the others: the Ngoni, with higher premarital fertility (14.0 percent), and the Sena, who are primarily rural and have a lower level of premarital fertility (5.8 percent).

Table 3 Premarital fertility and nuptiality indicators, Malawi.

Ethnolinguistic group	Number of women surveyed	Percent urban	Median age at first marriage (years)	Percent age 40-49 never married	Percent premarital births	Percent women with premarital	Percent premarital intercourse
Chewa	3,536	13.6	18.3	0.0	3.7	8.8	35.8
Tumbuka	1,291	27.5	17.8	0.0	2.8	8.3	32.1
Lomwe	2,589	13.2	17.2	0.4	3.7	10.1	45.7
Tonga	286	30.9	17.5	2.1	5.1	12.1	45.1
Yao	1,928	14.6	17.8	0.4	4.5	10.7	47.0
Sena	455	8.5	17.8	0.0	2.3	5.8	32.4
Nkonde	437	34.4	17.6	0.0	3.3	10.9	35.7
Ngoni	1,462	21.6	17.9	0.5	4.4	14.0	38.0
Amanganja/Anyanja	745	10.8	17.2	0.2	3.4	8.6	42.4
Other and unknown	491	11.4	17.3	0.0	3.2	8.8	29.4
Total	13,220	15.9	17.8	0.2	3.7	9.9	39.4

Source: Authors' calculations from 2000 DHS survey.

Figure 1 Correlation between premarital fertility and age at first marriage, Malawi



MALI

Mali has conducted three DHS surveys, in 1987, 1995, and 2001. The first survey provided six ethnic groups, while the two others provided nine groups with the same coding and larger sample sizes (Table 1). Furthermore the first survey gave higher than expected levels of premarital fertility. Therefore, the surveys of 1995 and 2001 were lumped together for final analysis.

Table 1 Sample size and main characteristics of DHS surveys, Mali

Mali	DHS 1987	DHS 1995	DHS 2001
No. of women interviewed	3,200	9,740	12,849
No. of ethnic categories, African	6	9	9
Percent other and unknown	11.3	11.1	5.5

The distribution of women age 15-49 by main ethnic group was basically the same in the two surveys. There were fewer "other and unknown" in the 2001 survey despite having the same ethnic groups. There were more Bambara, Sonrai, and Tamacheck, but fewer Dogon. These small differences do not matter for this study.

Table 2 Distribution of ethnic groups by survey, Mali

Ethnolinguistic group	DHS 1995	DHS 2001	P-value	Significance
Bambara	29.0	33.0	0.000	*
Malinke	7.6	9.2	0.000	*
Peulh	14.5	14.0	0.301	
Sarakole/Soninke	12.7	12.3	0.456	
Sonrai	3.3	5.9	0.000	*
Dogon	8.8	7.3	0.000	*
Tamacheck	0.8	2.0	0.000	*
Senoufo/Minianka	8.9	8.3	0.127	
Bobo	3.3	3.8	0.066	
Other and unknown	11.1	4.2	0.000	*
Total	100.0	100.0		

*p <0.05

Premarital Fertility by Ethnicity

Mali is a homogenous country with respect to nuptiality and fertility indicators. Early marriage is common and the level of premarital fertility is low (Table 2). Age at first marriage ranges from 15.7 to 17.0 years (average of 16.2 years), and the proportion of women who never marry is negligible (0.1 percent). Premarital fertility estimates range from 1.5 to 3.6 percent for all births (average of 2.7 percent) and from 4.6 to 11.1 percent for women (average of 8.1 percent). The prevalence of premarital intercourse ranges from 18.6 to 34.0 percent (average of 26.0 percent).

Unlike many African countries, premarital fertility is not related to age at first marriage (ρ = 0.088), and has no correlation with urban residence (ρ = 0.126).

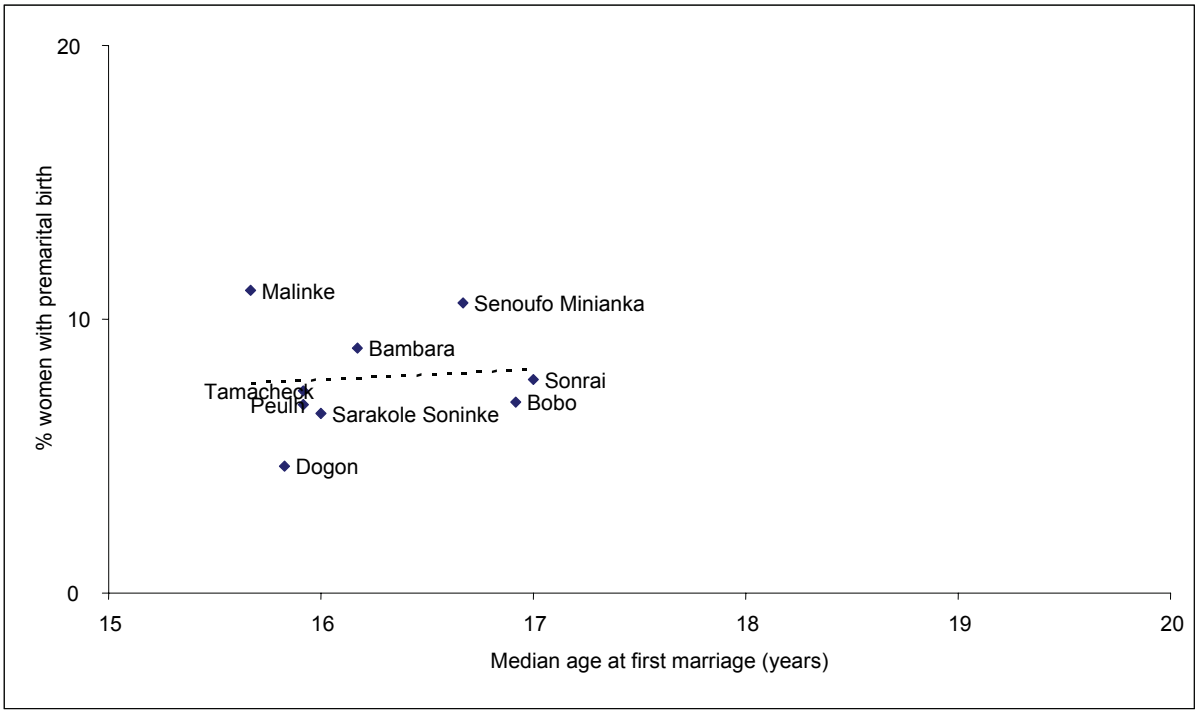
Because of the large sample size, most differences in the prevalence of premarital fertility were statistically significant—with the exception of the Sonrai and the Tamacheck—but are of such small magnitude as to have little sociological importance.

Table 3 Premarital fertility and nuptiality indicators, Mali

Ethnolinguistic group	Number of women surveyed	Ppercent urban	Median age at first marriage (years)	Percent age 40-49 never married	Percent premarital births	Percent women with premarital birth	Percent premarital intercourse
Bambara	6,413	25.8	16.2	0.0	2.9	8.9	28.2
Malinke	1,968	35.3	15.7	0.0	3.6	11.1	34.0
Peulh	3,119	31.7	15.9	0.1	2.3	6.9	22.5
Sarakole/Soninke	2,841	34.6	16.0	0.3	2.4	6.6	19.6
Sonrai	1,722	50.2	17.0	0.0	3.0	7.8	25.9
Dogon	1,472	17.9	15.8	0.0	1.5	4.6	19.0
Tamacheck	864	49.1	15.9	0.2	2.9	7.4	18.6
Senoufo/Minianka	1,736	25.4	16.7	0.0	3.5	10.6	32.7
Bobo	760	29.1	16.9	0.7	1.9	7.0	27.4
Other and unknown	1,658	43.1	16.4	0.0	3.0	8.0	25.6
Total	22,553	30.8	16.2	0.1	2.7	8.1	26.0

Source: Authors' calculations after merging data from 1995 and 2001 DHS surveys.

Figure 1 Correlation between premarital fertility and age at first marriage, Mali



MOZAMBIQUE

Mozambique conducted two DHS surveys, in 1997 and 2003. In 1997, ethnicity was defined as the main language spoken at home (V131), and was grouped into five large language families plus Portuguese speakers, which include mainly educated Africans and mixed races (*assimilados*). In addition, the mother tongue ("language learned to speak") was also recorded (S119) and coded in 50 categories. The 2003 survey also provided the "language learned to speak" in 26 detailed categories (S119). The two surveys were compatible to a large extent, since most of the additional categories in the first survey were small groups.

Table 1 Sample size and main characteristics of DHS surveys, Mozambique

Mozambique	DHS 1997	DHS 2003
No. of women interviewed	7,143	12,418
No. of ethnic categories, African	50	26
Percent other and unknown	1.3	3.2

After combining the two surveys, 16 groups large enough for proper estimation of premarital fertility were kept for final analysis (Table 2).

Table 2 Distribution of ethnic groups by survey, Mozambique

Origin	Ethnolinguistic group	DHS 1997	DHS 2003	Significance
Mixed	Portuguese	3.6	9.7	*
African	Emakhuwa	26.2	25.5	
	Xichangana	15.8	13.8	*
	Elomxe	8.0	6.3	*
	Cisena	12.4	6.4	*
	Echuwabo	2.5	3.4	*
	Bitonga	2.4	1.8	*
	Chichewa	3.1	4.9	*
	Nhungue	1.8	3.7	*
	Chitswa	6.1	6.6	
	Naconde	0.8	1.8	*
	Ndau	2.1	3.6	*
	Ronga	3.6	1.6	*
	Chitewe	1.9	1.4	*
	Chope	3.0	1.9	*
	Jaua	1.4	1.7	
Other and unknown		5.7	5.3	
Total		100.0	100.0	

Note: The spelling of names of ethnic groups varied between the two surveys; the spelling in the 2003 survey was used in this report.
*p <0.05

Some discrepancies in the frequency of ethnic groups could be noted between the two surveys, and most of the differences were statistically significant. Portuguese speakers accounted only for 3.6 percent in the first survey, but for 9.7 percent in the second survey, indicating probably some mixture between mother tongue, language spoken at home or language learned in school. The Cisena had an abnormally high presence in the first sample and an abnormally low presence in the second; this may be a result of the sampling procedure. The Nhungue had an abnormally low presence in the first survey, whereas the Ronga and Chope were over represented. In any case, with the exception of the Portuguese speakers, which is a mixed category anyway, these discrepancies appear as minor.

Premarital Fertility by Ethnicity

Mozambique has medium age at first marriage (17.4 years) and a medium level of premarital fertility (6.7 percent of all births, 15.3 percent of women) (Table 3). Between African groups, age at marriage varied from 15.7 to 19.4 years. It was higher for Portuguese speakers, who are more urbanized (83.1 percent). Similarly, premarital fertility varied from 5.8 to 34.1 percent among the African groups, and was 30.6 percent for Portuguese speakers. The prevalence of premarital intercourse, which ranged from 31.6 to 72.1 percent among African groups, was 80.9 percent among Portuguese speakers.

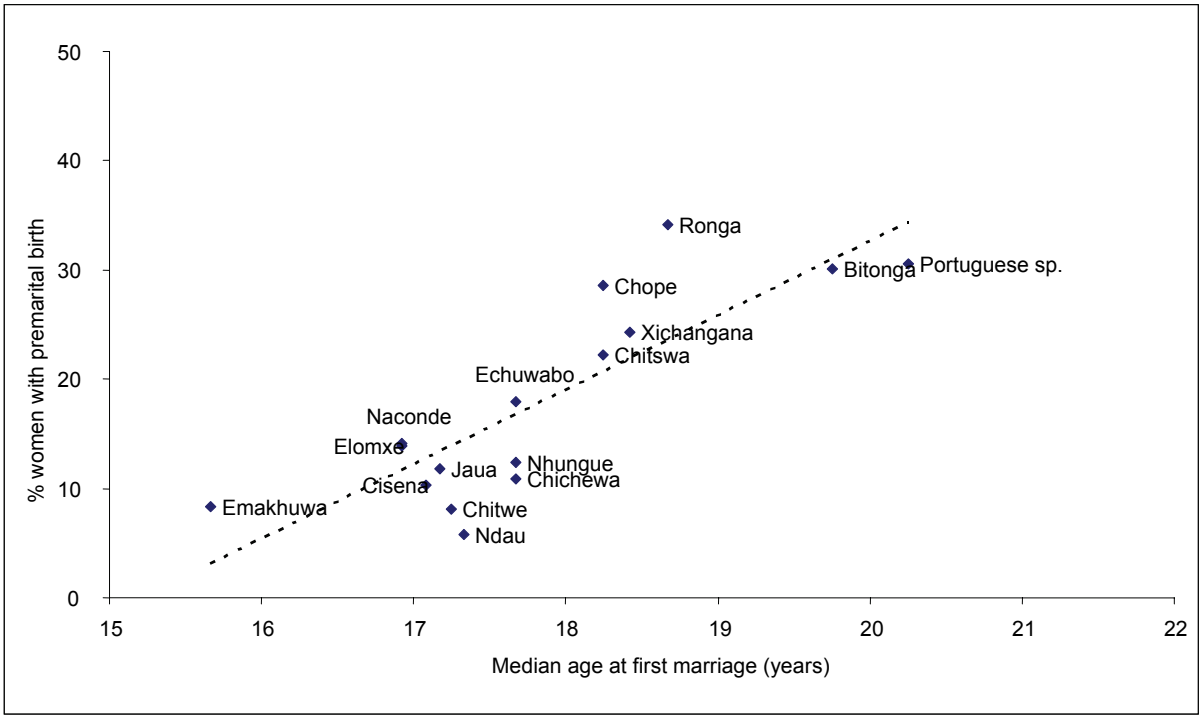
Table 3 Premarital fertility and nuptiality indicators, Mozambique

Ethnolinguistic group	Number of women surveyed	Percent urban	Median age at first marriage (years)	Percent age 40-49 never married	Percent premarital births	Percent women with premarital birth	Percent premarital intercourse
Portuguese	1,761	83.1	20.3	7.5	16.5	30.6	80.9
Emakhuwa	4,051	22.1	15.7	1.2	3.7	8.4	31.6
Xichangana	3,987	41.9	18.4	1.7	11.5	24.3	64.0
Elomxe	725	8.3	16.9	2.4	6.4	13.9	52.8
Cisena	1,705	26.1	17.1	0.0	4.3	10.3	34.7
Echuwabo	473	23.9	17.7	2.7	8.0	18.0	60.7
Bitonga	504	43.4	19.8	5.8	13.8	30.0	72.1
Chichewa	793	4.6	17.7	1.6	3.5	10.8	50.9
Nhungue	809	31.7	17.7	0.0	4.4	12.4	48.8
Chitswa	1,371	24.0	18.3	4.0	12.3	22.3	60.0
Naconde	290	20.9	16.9	0.0	6.5	14.1	49.3
Ndau	1,076	35.9	17.3	2.8	3.0	5.8	36.6
Ronga	726	81.7	18.7	3.2	14.9	34.1	71.7
Chitewe	620	30.0	17.3	1.7	4.5	8.1	39.0
Chope	556	34.0	18.3	0.8	12.6	28.6	63.8
Jaua	540	25.2	17.2	0.0	4.3	11.8	32.8
Other and unknown	1,210	24.4	17.1	0.8	4.3	9.2	42.8
Total	21,197	31.3	17.4	1.8	6.7	15.3	49.0

Source: Authors' calculations after merging data from 1997 and 2003 DHS surveys.

Correlations between premarital fertility and other factors were high: age at marriage (ρ = 0.975), urban residence (ρ = 0.709), and premarital intercourse (ρ = 0.919). There is little deviation from the linear patterns for age at marriage (Figure 1) and urban residence.

Figure 1 Correlation between premarital fertility and age at first marriage, Mozambique



NAMIBIA

Namibia conducted two DHS surveys, in 1992 and 2000. Ethnicity was defined as the main language spoken at home (V131). The first DHS survey coded ten ethnolinguistic group categories: seven of African origin, and three of European origin (Afrikaans, English and German). The second DHS survey coded the same categories, though two of the European groups (German and English) were lumped together.

Table 1 Sample size and main characteristics of DHS surveys, Namibia

Namibia	DHS 1992	DHS 2000
No. of women interviewed	5,421	6,755
No. of ethnic categories, African	7	7
No. of ethnic categories, European	3	2
Percent other and unknown	10.7	0.9

There were some minor inconsistencies in definitions of ethnolinguistic groups between the two surveys. For example, in the 1992 DHS, the group of "other and unknown" was much larger than in 2000 (10.7 percent versus 0.9 percent). In fact, it included a number of smaller groups living in the northeast. These could be identified by referring to the main language used for the interview (SLANG), which was in most cases either Kwangali or Lozi. The "other and unknown" ethnicity variable in the 1992 DHS was therefore recoded according to the language used for the interview. After this procedure, the two distributions of ethnicity were comparable in the two DHS surveys, and compatible with the 2001 Census information (Table 2).

Table 2 Distribution of ethnic groups by survey, Namibia

Origin	Ethnolinguistic group	DHS 1992	DHS 2000	Census 2001
African	Ovambo/Oshivambo	48.4	48.9	49.4
	Kavango/Kwangali	10.6	8.9	10.1
	Nama/Damara	14.6	14.7	9.6
	Herero/OshiHerero	6.3	10.3	5.1
	Caprivi/Lozi	6.0	4.1	3.8
	San	1.0	1.3	-
	Tswana	0.6	0.2	-
European and mixed	Afrikaans	11.4	10.1	8.2
	English	0.7	0.7	-
	German	0.5	-	-
	Other and unknown		0.9	13.7
	Total	100.0	100.0	100.0

Note: The data for the 1992 DHS survey were analyzed after correction of "other and unknown" from language of interview.

Note that since only the main language spoken at home was recorded in the survey, some categories are somewhat fuzzy. This is the case in Afrikaans-speaking groups in particular, which include people of European origin (Afrikaner), mixed races (Rohobotan/Baster), and some urbanized people of African origin. Of course, there are many more ethnic groups described in Namibia; some 25 ethnolinguistic groups have been described, not counting European languages and tiny minorities of foreign origin (Indians, Portuguese, etc.).

Both DHS surveys were compatible in the definition of ethnicity, in the population distribution by ethnolinguistic groups, and in the ranking of premarital fertility. Data are therefore presented for both surveys combined (Table 3).

Table 3 Premarital fertility and nuptiality indicators, Namibia

Ethnolinguistic group	Number of women surveyed	Percent urban	Median age at first marriage (years)	Percent age 40-49 never married	Percent premarital births	Percent women with premarital birth	Percent premarital intercourse
English/German	108	94.9	23.5	1.2	17.7	26.5	71.0
Afrikaans	1,411	86.4	23.7	9.8	38.6	55.5	74.0
Ovambo/Oshivambo	4,910	25.2	29.6	18.6	44.7	65.2	77.0
Kavongo/Kwangali	1,256	16.3	18.8	0.5	13.1	27.9	57.9
Caprivi/Lozi	966	27.5	21.0	0.9	25.6	52.4	80.7
Damara/Nama	2,130	65.7	27.2	18.8	57.0	70.8	86.8
Herero	1,149	52.2	30.1	30.9	60.0	76.2	91.1
San	154	2.2	20.6	4.2	23.5	26.8	59.1
Other and unknown	92	78.0	29.8	38.7	53.1	54.0	80.8
Total	12,176	39.9	27.0	16.0	42.7	60.4	77.5

Source: Authors' calculations after merging data from 1992 and 2000 DHS surveys.

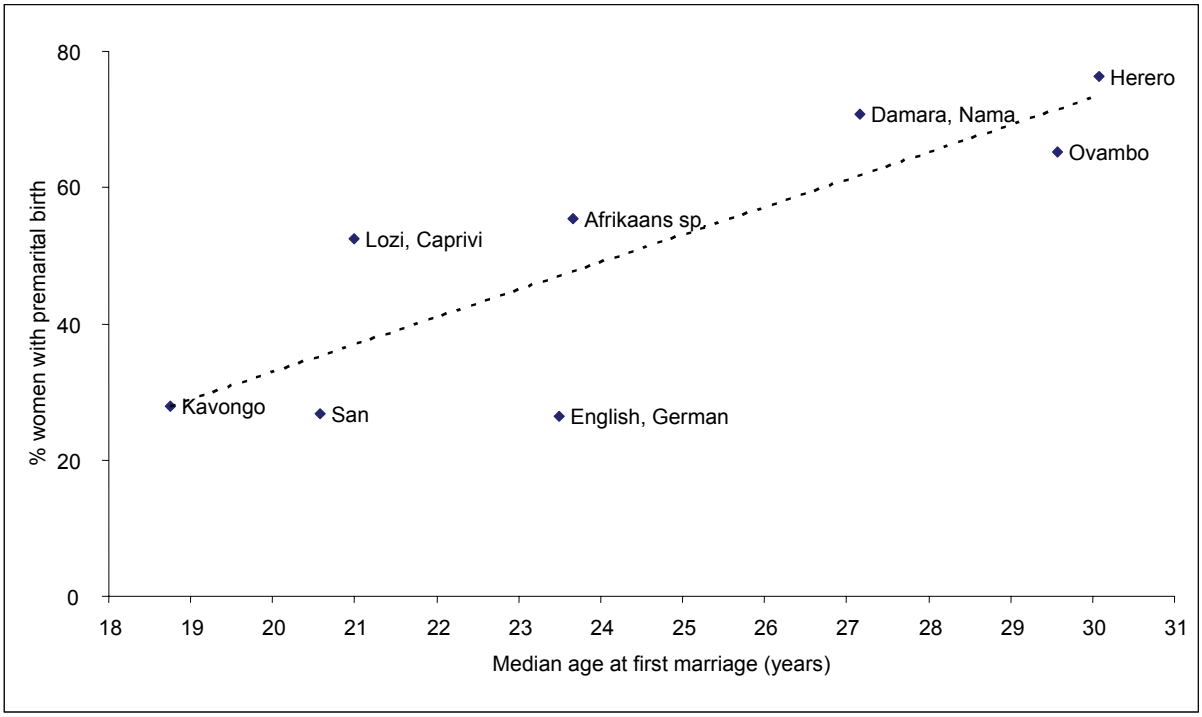
Premarital Fertility by Ethnicity

Namibia has a very high median age at first marriage (25.9 years), a high proportion of women who never marry (16.0 percent), and a high level of premarital fertility (42.7 percent for all births and 60.4 percent for women).

Differentials in premarital fertility by ethnicity are marked, varying from 13 to 60 percent for all births, and from 29 to 79 percent for women. Premarital fertility is closely associated with age at first marriage ($\rho = 0.831$), as seen in Figure 1, and with the prevalence of premarital intercourse ($\rho = 0.900$); however, it is not associated with urban residence ($\rho = 0.195$).

A detailed analysis of premarital fertility in Namibia was published elsewhere (Garenne and Zwang, 2005). Differentials in premarital fertility by ethnicity were stable after controlling for a variety of socioeconomic factors, including urban residence, level of education, and access to mass media. This highlights the major role of cultural factors in determining levels of premarital fertility.

Figure 1 Correlation between premarital fertility and age at first marriage, Namibia



NIGER

Niger conducted two DHS surveys, in 1992 and in 1998 (Table 1). We were able to combine the two surveys since both provided the same distribution of ethnic groups. Ethnicity was defined as the main language spoken at home (V131). The DHS survey coded nine ethnolinguistic group categories of African origin, and proportions of "other and unknown" were small in both surveys.

Table 1 Sample size and main characteristics of DHS surveys, Niger

Niger	DHS 1992	DHS 1998
No. of women interviewed	6,503	7,577
No. of ethnic categories, African	9	9
Percent other and unknown	2.4	1.8

The two surveys were compatible in the distribution of ethnic groups, with some minor differences (Table 2). However, some groups were small in size and had to be lumped together in the "other and unknown" category for final analysis.

Table 2 Distribution of ethnic groups by survey, Niger

Origin	Ethnolinguistic group	DHS 1992	DHS 1998	P-value	Significance
African	Arab	0.2	0.2	0.462	
	Djerma	22.4	21.4	0.164	
	Gourmantche	0.3	0.4	0.190	
	Hausa/Haoussa	54.5	58.4	0.000	*
	Kanouri	5.3	4.3	0.007	*
	Mossi	0.0	0.2	0.039	*
	Peulh	4.6	4.9	0.460	
	Touareg	10.0	8.4	0.001	*
	Toubou	0.3	0.1	0.000	*
	Other and unknown	2.4	1.8	0.013	*
	Total	100.0	100.0		

*p <0.05

Premarital Fertility by Ethnicity

Niger has a low age at first marriage and a low level of premarital fertility (Table 3). Overall, all indicators of premarital fertility are on the low side in Niger: premarital births (1.0 percent), women with a premarital birth (2.8 percent), premarital intercourse (4.5 percent), proportion never married (0.2 percent), median age at first marriage (15.0 years), and proportion urban (19 percent).

Niger is markedly homogenous with respect to ethnicity. There was hardly any variation among the variables examined. The only group that stands out is the "other and unknown," which primarily includes urban residents, many originally from other countries.

Table 3 Premarital fertility and nuptiality indicators, Niger

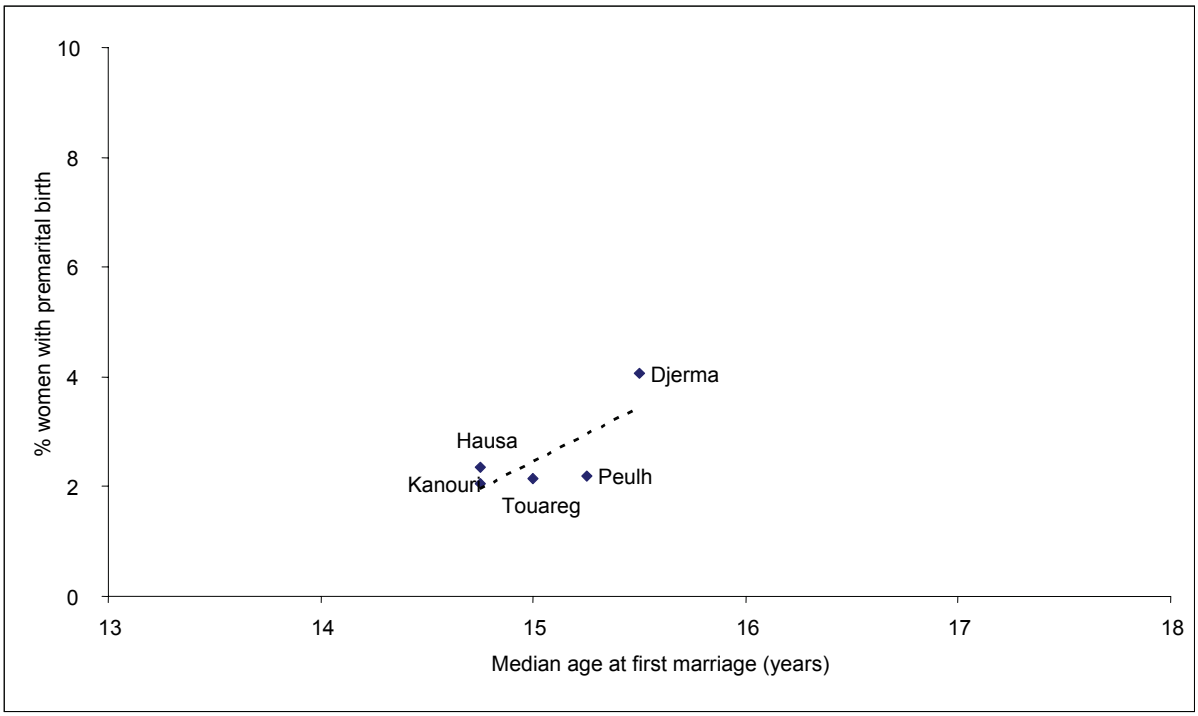
Ethnolinguistic group	Number of women surveyed	Percent urban	Median age at first marriage (years)	Percent age 40-49 never married	Percent premarital births	Percent women with premarital birth	Percent premarital intercourse
Djerma	3,560	23.3	15.5	0.3	1.5	4.1	4.9
Hausa	7,405	15.9	14.8	0.0	0.8	2.3	3.7
Kanouri	565	17.1	14.8	0.0	0.8	2.1	3.4
Peulh	734	22.6	15.3	0.0	0.9	2.2	5.2
Touareg	1,148	12.7	15.0	0.0	0.7	2.1	5.0
Other and unknown	668	61.5	15.5	4.0	3.6	9.7	19.8
Total	14,080	19.0	15.0	0.2	1.0	2.8	4.5

Source: Authors' calculations after merging data from 1992 and 1998 DHS surveys.

The level of premarital fertility among ethnic groups that extend across national borders is similar to that of their counterparts in the neighboring countries. Hausa, Kanouri and Fulani (Peulh) in Niger have patterns of behavior similar to those of related groups in Nigeria. This is also the case for the Touareg in Niger and Burkina Faso.

There is a clear relationship between premarital fertility and urban residence (ρ = 0.977). This is primarily because of the "other and unknown" category, although there was a small relationship among the five indigenous groups because of the Djerma (ρ = 0.612) (Figure 1). Correlation with age at marriage was also significant, despite small differentials for the same reasons (ρ = 0.761).

Figure 1 Correlation between premarital fertility and age at first marriage, Niger



NIGERIA

Nigeria is a special case in Africa, both for its large population, as well its extreme ethnic diversity. Some 485 languages appear in the Ethnologue database. The ethnic information gained from DHS surveys is necessarily much more limited in scope.

Nigeria conducted one WFS survey in 1982 and three DHS surveys, in 1990, 1999, and in 2003 (Table 1). All four surveys had some information on ethnicity, though coded in various ways. The WFS had 34 categories, including the most important groups. The 1990 DHS survey had 92 categories; however, labels were provided for only 25 groups and the others could not be used. The last two DHS surveys (1999 and 2003) had the same coding and provided basically the same information, although some of the ethnic groups were very small. Although more could be probably done with ethnicity in Nigeria, only the last two surveys were selected since both provided compatible information, and also provided a large enough sample for statistical inference. Adding a few groups from the other surveys would not have changed the main features of the analysis. Ethnicity was defined as the main language spoken at home (S119 and S118 respectively). The proportion of "other and unknown" was small in the two surveys selected.

Table 1 Sample size and main characteristics of DHS surveys, Nigeria

Nigeria	WFS 1982	DHS 1990	DHS 1999	DHS 2003
No. of women interviewed	9,727	8,781	9,810	7,620
No. of ethnic categories, African	34	92	112	95
Percent other and unknown	15.8	2.3	8.4	10.2

The two surveys were compatible in the distribution of ethnic groups, with some minor differences (Table 2). Large groups (Hausa, Fulani, Yoruba, Igbo) were always well represented, and these four already account for more than half (58 percent) of the total population. Many other groups had enough women interviewed in 1999 and 2003 to be analyzed separately. A final list of 13 groups was kept in addition to the four largest, nine of them with at least 250 women, and four of them with less than 250 women. The smallest group contained 136 women (Table 2).

Groups with smaller sample size were lumped together according to their geographic origin: other groups from the Northern regions (Northwest and Northeast), other groups from North-Central and Southwest regions, and other groups from South and Southeast regions. Regions were based on the 2003 survey (V101).

Premarital Fertility by Ethnicity

Nigeria is a large country with marked differences in demographic patterns and social behavior. Nigeria has a medium level of premarital fertility (4.5 percent for all births, and 11.0 percent for women), a medium age at first marriage (17.8 years), a medium prevalence of premarital intercourse (31.2 percent), a low proportion of women who never marry (1.0 percent), and a moderate level of urban residence (32.4 percent).

Table 2 Distribution of ethnic groups by survey, Nigeria

Ethnolinguistic group	WFS 1982	DHS 1990	DHS 1999	DHS 2003	Difference between 1999 and 2003 surveys: P-value	Difference between 1999 and 2003 surveys: Significance
Hausa	18.6	25.2	18.3	27.0	0.000	*
Fulani	6.8	3.3	4.3	6.1	0.000	*
Kanuri	2.8	2.4	0.7	3.0	0.000	*
Other Northern	1.1	7.4	7.5	6.6	0.019	*
Yoruba	14.4	16.8	19.7	11.4	0.000	*
Tiv	1.1	2.8	1.3	2.2	0.000	*
Nupe	1.1		1.2	0.8	0.008	*
Igbala/Igala	1.9	0.7	2.3	3.0	0.006	*
Idoma	0.8	1.2	1.8	0.8	0.000	*
Ibira/Igbirra	0.3		2.0	0.6	0.000	*
Gwari	1.5	5.8	0.6	1.1	0.000	*
Other Central, West	1.1	0.9	2.9	1.7	0.000	*
Igbo/Ibo	23.7	16.5	15.9	13.6	0.000	*
Ibibio	4.1		4.8	3.8	0.003	*
Ijaw	1.1	1.0	1.4	1.1	0.099	
Edo	0.9	0.5	2.4	0.9	0.000	*
Annang	1.4		1.3	1.7	0.059	
Urhobo	0.8	1.1	1.0	1.1	0.237	
Ogoni/Ogori	0.0		1.0	1.6	0.002	*
Other South and East	1.0	12.0	1.0	1.5	0.011	*
Other and unknown	15.8	2.3	8.4	10.2	0.000	*
Total	100.0	100.0	100.0	100.0		

*p <0.05

These average values hide major differences among ethnic groups. Urban residence is low for small groups such as the Ogoni and the Annang, but it is high for the Yoruba, the Ibira and the Urhobo. Age at first marriage is low (<15 years) for the northern groups (Hausa, Fulani, Kanuri) but high (>20 years) for some of the southeastern groups (Igbo, Urhobo), as well as the urbanized Yoruba. Premarital fertility is low (<5 percent) for the Fulani and Kanuri and high (>20 percent) for the Ibibio, Ijaw, Urhobo, and Ogoni. Similarly, premarital intercourse is rare among the Fulani, Kanuri, and Hausa, but common (>50 percent) among many of the southeastern groups as well as among the Yoruba.

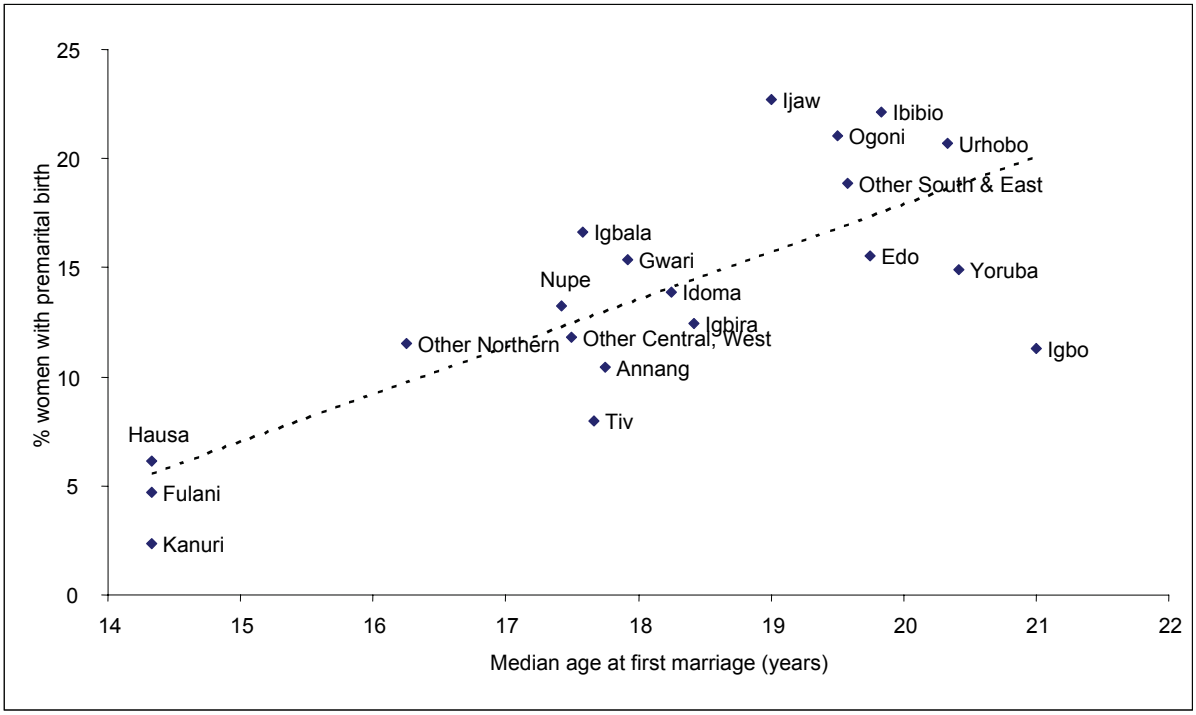
Correlation with age at first marriage was relatively high (ρ = 0.762), as can be seen in Figure 1. The differentials show the main divisions in the country: a cluster of three northern groups with low age at first marriage and low level of premarital fertility (Hausa, Fulani, Kanuri); a second cluster of groups in central and southwest Nigeria with medium age at first marriage and level of premarital fertility; and a third cluster of groups primarily in southern and eastern Nigeria with high age at first marriage and level of premarital fertility. There are some exceptions to this overall pattern. The Yoruba live in the central and western parts of the country, but are included in the third cluster because they are more urbanized. The Annang are located in the southern region, but belong to the second cluster. The "other northern groups" also belong to the second cluster; they are primarily ethnic groups located in the southern parts of the northern provinces, and are close to the north-central groups.

Table 3 Premarital fertility and nuptiality indicators, Nigeria

Ethnolinguistic group	Number of women surveyed	Percent urban	Median age at first marriage (years)	Percent age 40-49 never married	Percent premarital births	Percent women with premarital birth	Percent premarital intercourse
Hausa	3,623	26.0	14.3	0.2	2.4	6.1	4.8
Fulani	912	15.5	14.3	0.8	1.8	4.7	3.4
Kanuri	253	32.8	14.3	0.0	0.9	2.4	3.0
Other Northern	1,321	23.3	16.3	0.0	4.8	11.5	17.9
Yoruba	2,914	61.0	20.4	0.2	6.2	14.9	55.0
Tiv	340	19.4	17.7	0.0	3.5	8.0	29.3
Nupe	180	34.3	17.4	0.0	4.1	13.3	13.0
Igbala/Igala	364	18.4	17.6	0.0	9.3	16.6	46.5
Idoma	260	19.8	18.3	2.9	6.0	13.9	32.1
Ibira/Igbirra	260	60.4	18.4	0.0	5.4	12.5	37.7
Gwari	136	13.3	17.9	0.0	7.4	15.4	18.3
Other Central, West	405	16.2	17.5	2.0	7.4	11.8	21.1
Igbo/Ibo	2,946	38.0	21.0	2.9	4.5	11.3	50.7
Ibibio	599	19.8	19.8	6.2	7.8	22.1	62.1
Ijaw	239	19.4	19.0	1.9	8.7	22.7	60.5
Edo	296	48.0	19.8	0.0	5.3	15.5	56.1
Annang	223	3.1	17.8	0.0	4.7	10.4	56.8
Urhobo	158	59.5	20.3	0.0	8.7	20.7	61.8
Ogoni/Ogori	158	0.0	19.5	4.6	9.8	21.0	61.8
Other South, East	176	23.6	19.6	0.0	8.4	18.9	68.0
Other and unknown	1,667	27.1	17.7	1.1	5.8	14.4	35.5
Total	17,430	32.4	17.8	1.0	4.5	11.0	31.2

Source: Authors' calculations after merging data from 1999 and 2003 DHS surveys.

Figure 1 Correlation between premarital fertility and age at first marriage, Nigeria



RWANDA

Rwanda is a special case in this analysis because ethnicity is linked more to social status than to geographical area or culture. Like Burundi, Rwanda is a small country and more homogeneous ethnically than other African countries. Three ethnic groups are usually distinguished in Rwanda: Hutu, Tutsi, and Twa. The first two groups account for 99 percent of the population, while the Twa is a small minority of aborigines (pygmies), most of whom live in the northwestern forests. Both Hutu and Tutsi speak the same language (kinyarwanda), share the same culture, and live in the same areas, although the proportion of Tutsis tends to be lower in the northern part of the country. The early history of relationships between the Hutu and Tutsi is complex and well documented. They were further complicated by political events around the time of independence (1960), subsequent struggles for power, and civil war and genocide in 1994. Despite these events, Rwanda was kept in this analysis because it shows an interesting pattern.

Rwanda conducted one WFS survey in 1983 and two DHS surveys, in 1992 and 2000 (Table 1). The first two surveys covered the three ethnic groups and a tiny fraction of other and unknown ethnic groups. After 1994, ethnicity became a politically sensitive subject in Rwanda, and it was not examined in the 2000 DHS survey. For this reason, we relied on the first two surveys for this analysis.

Table 1 Sample size and main characteristics of surveys, Rwanda

Rwanda	WFS 1983	DHS 1992	DHS 2000
No. of women interviewed	5,738	6,551	10,421
No. of ethnic categories, African	3	3	na
Percent other and unknown	0.5	0.3	0.5

na = Not applicable

The two surveys were compatible with respect to the distribution of ethnic groups and could be combined, although fewer Tutsis were present in the second survey. The second survey also showed higher levels of premarital fertility for both Tutsis and Hutus, indicating an increasing trend over time. However, the pattern of differences with respect to premarital fertility was the same in the two surveys.

Table 2 Distribution of ethnic groups by survey, Rwanda

Origin	Ethnolinguistic group	WFS 1983	DHS 1992	P-value	Significance
African	Hutu	86.4	90.7	0.000	*
	Tutsi	12.6	8.7	0.000	*
	Twa	0.5	0.4	0.284	
	Other and unknown	0.5	0.3	0.070	
	Total	100.0	100.0		

*p <0.05

Premarital Fertility by Ethnicity

Results for the Twa should be interpreted with caution because they are based on only 48 women, show no cases of premarital birth, and have wide confidence intervals (Table 3). However, the premarital fertility of the Twa was borderline significantly different from the other groups ($p = 0.054$), and they were kept separate because of their special ethnic identity and because they matched the overall pattern of relationship with age at marriage.

The two other groups were quite different. Compared with the Hutu, the Tutsi are more urbanized, have higher age at marriage, higher premarital fertility, and higher incidence of premarital intercourse. The Twa, who are almost entirely rural, had lower premarital fertility despite high rates of premarital intercourse. This pattern is primarily the result of lower age at marriage.

Table 3 Premarital fertility and nuptiality indicators, Rwanda

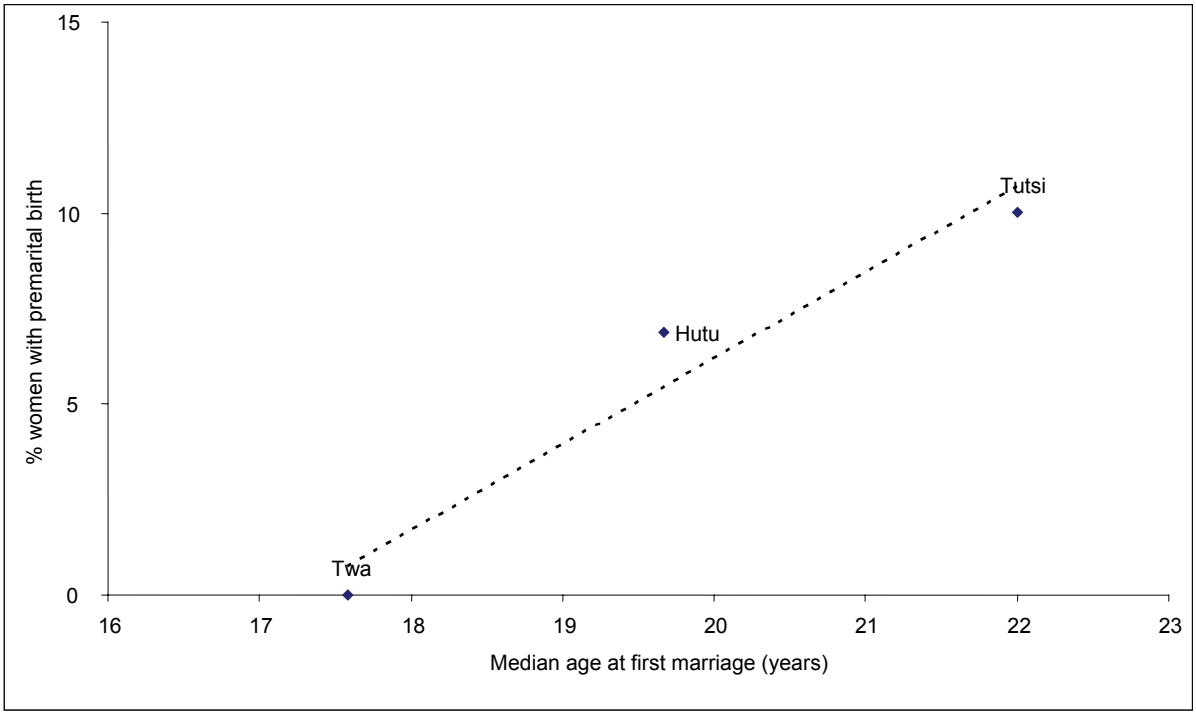
Ethnolinguistic group	Number of women surveyed	Percent urban	Median age at first marriage (years)	Percent age 40-49 never married	Percent premarital births	Percent women with premarital birth	Percent premarital intercourse
Hutu	10,750	5.4	19.7	0.6	2.2	6.9	17.4
Tutsi	1,416	14.5	22.0	1.3	3.2	10.0	23.2
Twa	48	3.0	17.6	0.0	0.0	0.0	30.2
Other and unknown	75	36.2	19.3	0.0	2.9	14.0	41.8
Total	12,289	6.2	19.9	0.6	2.2	7.1	18.0

Source: Authors' calculations after merging data from 1983 WFS and 1992 DHS surveys.

Correlations with age at marriage and urban residence are of little value because they are based on only three ethnic groups, one of which is very weak. However, the patterns resemble those seen in other countries (Figure 1).

An important feature of premarital fertility in Rwanda is its low prevalence (2.2 percent for all births, 7.1 percent for women) in conjunction with high age at first marriage (19.9 years). A similar pattern is seen in Burundi, with which Rwanda shares much of its social fabric. Despite minor differences relating to socioeconomic factors, and despite the special case of the Twa minority, Rwanda and Burundi have a unique pattern of premarital fertility in Central Africa.

Figure 1 Correlation between premarital fertility and age at first marriage, Rwanda



SENEGAL

Senegal conducted one WFS survey in 1978, and three DHS surveys, in 1986, 1993, and 1997 (Table 1). Another DHS survey was conducted in 1999 but the data were not available when this report was prepared. The first survey (WFS) included 18 specific ethnic groups, the second survey had only five groups, the third survey had seven groups, and the fourth survey had ten groups. The main groups were compatible, but many were missing in the second survey. The data in the first survey were considered somewhat out-of-date, and had a lower than average rate of premarital fertility. The second survey was limited in the number of ethnic groups, and had a higher than average rate of premarital fertility. Therefore, the last two surveys (1993 and 1997), which also had larger sample sizes, were used for the analysis.

Table 1 Sample size and main characteristics of surveys, Senegal

Senegal	WFS 1978	DHS 1986	DHS 1993	DHS 1997
No. of women interviewed	3,985	4,415	6,310	8,593
No. of ethnic categories, African	18	5	7	10
Percent other and unknown	7.5	10.1	3.5	4.5

The last two surveys were compatible with respect to the distribution of ethnic groups, were compatible with the other surveys, and could be matched (Table 2). However, the southern groups (Manjaak, Mancagne, and Balant) were not coded in the 1993 DHS survey, so information on these groups comes only from the 1997 survey. Because the sample sizes of the three groups were small and the groups had similar characteristics, they were merged in this analysis to form a separate ethnic category. This was done partly because the three groups had unusual characteristics.

Table 2 Distribution of ethnic groups by survey, Senegal

Ethnolinguistic group	WFS 1978	DHS 1986	DHS 1993	DHS 1997	Difference between 1993 and 1997 surveys: P-value	Difference between 1993 and 1997 surveys: Significance
Wolof/Lebou	42.7	42.1	42.5	41.0	0.063	
Poular	22.8	23.0	23.2	24.8	0.021	*
Serer	14.2	14.5	15.4	14.3	0.074	
Mandingue/Soce/Malinké	4.5	5.0	7.6	5.0	0.000	*
Diola	3.8	5.5	5.2	4.6	0.058	
Sarakole/Soninke	1.8		1.7	2.3	0.004	*
Bambara	1.5		0.9	1.8	0.000	*
Manjaak, Mancagne, Balante	1.0			1.7	na	na
Other and unknown	7.7	10.1	3.5	4.5	na	na
Total	100.0	100.0	100.0	100.0		

*p <0.05
na = Not applicable

Premarital Fertility by Ethnicity

Senegal has a moderate level of premarital fertility, with an average of 3.8 percent for all births and 11.1 percent for women. Median age at marriage is low (16.9 years), and the level of premarital intercourse is low by African standards (13.8 percent), except in the southern groups, where it is much higher (>44 percent).

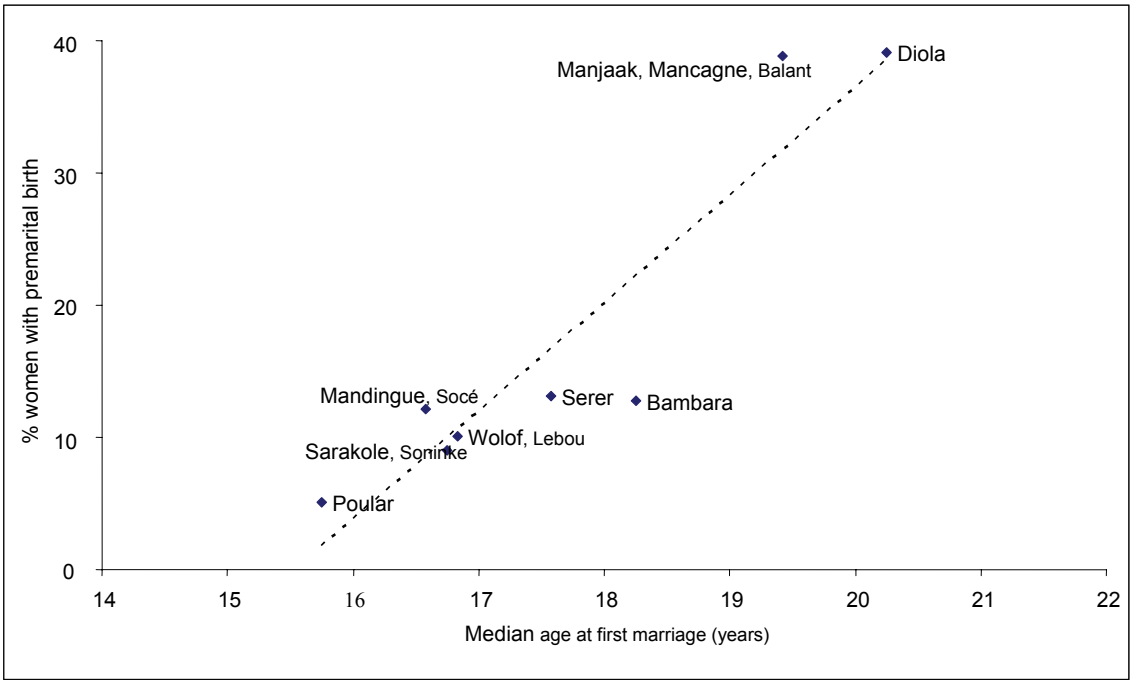
Table 3 Premarital fertility and nuptiality indicators, Senegal

Ethnolinguistic group	Number of women surveyed	Percent urban	Median age at first marriage (years)	Percent age 40-49 never married	Percent premarital births	Percent women with premarital birth	Percent premarital intercourse
Wolof/Lebou	5,931	48.6	16.8	0.3	3.3	10.1	10.6
Poular	3,475	34.8	15.8	0.5	1.6	5.1	6.6
Serer	2,388	34.6	17.6	0.1	4.0	13.1	17.2
Mandingue/Soce/Malinké	1,012	38.6	16.6	0.8	4.3	12.2	16.7
Diola	855	53.0	20.3	0.3	15.9	39.1	53.5
Sarakole/Soninke	279	38.4	16.8	0.0	3.7	9.0	10.5
Bambara	206	62.3	18.3	0.0	3.6	12.8	15.2
Manjaak, Mancagne, Balante	168	49.7	19.4	0.0	13.3	38.9	44.5
Other and unknown	589	57.3	17.0	0.0	4.4	12.1	17.8
Total	14,903	43.2	16.9	0.3	3.8	11.1	13.8

Source: Authors' calculations after merging data from 1993 and 1997 DHS surveys.

Differentials by ethnicity are large. Two groups, the Diola, and the Manjaak-Mancagne-Balant stand out as having high levels of premarital fertility (39.1 percent and 38.9 percent, respectively) and high age at marriage (20.3 years and 19.4 years, respectively) (Table 3). The two groups are located primarily in Casamance, in the southern part of the country, south of the Gambia and near Guinea Bissau (where the Manjaak-Mancagne-Balant originated). The behavior of these groups is quite different from that of the other groups in the country. At the other end of the spectrum are the Poular (Fulani), who, like their kin in various other West African countries, have a low age at marriage (15.8 years) and only a small proportion of the women have had a premarital birth (5.1 percent). Other groups are similar, with minor variations. The Wolof tend to have a low level of premarital fertility, despite being more urbanized, while the opposite is the case for the Serer. The small group of Bambara had lower levels than expected, given that they are the most urbanized group, and had higher age at marriage than the others. Even if statistically significant, the small differences between the five middle groups have little sociological implication, and the groups can be regarded as similar.

Figure 1 Correlation between premarital fertility and age at first marriage, Senegal



SOUTH AFRICA

South Africa conducted one DHS survey in 1998 and another in 2003-04. Data for the latter survey have not been released. Only the 1998 DHS survey was accessible when this study was conducted (Table 1). The 1998 DHS survey included four racial groups (V131) and the 11 official languages of the country, two of which are European languages (Afrikaans and English). The two types of information (race and language) were merged to form 13 comprehensive ethnolinguistic groups. Three of the groups identify the non-African population by race (White, Asian/Indian, Colored), while nine are ethnolinguistic groups in the black/African population. The sample was large enough to accommodate the 13 groups. Very few "other and unknown" groups were left over, despite there being a large number of foreigners living in South Africa. However, some of these would be included in the various ethnic groups (for example, the Shangaan/Tsonga from Mozambique, and the Southern Sotho from Lesotho).

Table 1 Sample size and main characteristics of DHS survey, South Africa

South Africa	DHS 1998
No. of women interviewed	11,735
No. of ethnic categories, African	9
Racial groups	4
Percent other and unknown	0.2

The survey is compatible with respect to the distribution of ethnic groups from other sources (Table 2).

Table 2 Distribution of ethnic groups in survey, South Africa

South Africa	Ethnolinguistic and racial group	DHS 1998
Others	White	7.8
	Asian/Indian	3.5
	Coloured	10.2
Black/African	Speaking European languages	1.9
	Xhosa	15.2
	Zulu	25.0
	Sotho	8.6
	Tswana	11.0
	Pedi	9.3
	Swazi	2.0
	Venda	1.7
	Tsonga	2.7
	Ndebele	0.9
	Other and unknown	0.2
	Total	100.0

Premarital Fertility by Ethnicity

Premarital fertility is high in South Africa, with an average of 38.9 percent for all births and 59.1 percent for women. The median age at marriage is high (24.7 years) and the prevalence of premarital intercourse is high (81.4 percent).

Table 3 Premarital fertility and nuptiality indicators, South Africa

Ethnolinguistic group	Number of women surveyed	Percent urban	Median age at first marriage (years)	Percent age 40-49 never married	Percent premarital births	Percent women with premarital birth	Percent premarital intercourse
White	755	86.7	21.3	0.6	3.2	5.2	50.4
Asian/Indian	393	98.2	21.1	6.3	7.6	11.9	30.9
Coloured	1,533	82.4	25.0	11.2	44.6	66.6	83.5
Black, speaking European languages	257	66.9	28.3	28.9	42.5	70.6	88.4
Xhosa	2,693	53.4	24.6	18.3	38.6	62.7	86.0
Zulu	2,147	55.8	27.1	18.5	49.6	72.9	90.2
Sotho	951	80.4	23.2	8.6	35.0	58.6	85.3
Tswana	1,200	61.6	26.8	16.8	52.7	74.3	90.6
Pedi	910	33.6	23.1	14.6	37.2	58.1	78.7
Swazi	333	29.3	20.9	14.8	31.9	54.9	82.1
Venda	169	10.8	19.8	0.0	16.7	38.6	63.9
Tsonga	269	16.4	19.8	3.0	23.1	41.9	65.6
Ndebele	125	46.5	26.7	12.0	42.3	73.2	89.6
Total	11,735	60.5	24.7	13.2	38.9	59.1	81.4

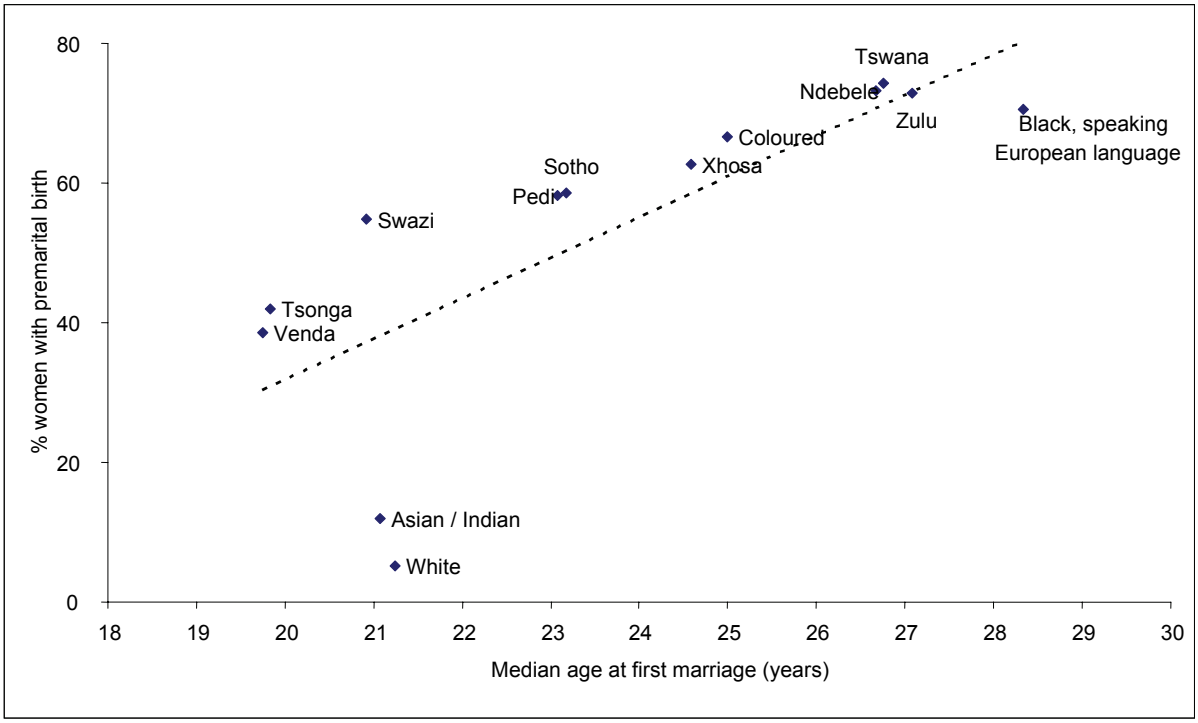
Source: Authors' calculations from 1998 DHS survey.

Differentials by ethnicity are large. Racial groups stand out as significant, with White and Asian populations having much lower premarital fertility (5.2 percent and 11.9 percent, respectively), despite high median age at marriage (21.3 and 21.1 years, respectively) and high urban residence (86.7 percent and 98.2 percent, respectively). At the other end of the spectrum, the Colored (mixed race)[1] population shows high premarital fertility (66.6 percent), high age at marriage (25.0 years), and higher than average urban residence (82.4 percent). Among the African groups, the differentials were wide as well. The Tsonga and Venda have lower age at marriage (19.8 years each) and lower than average premarital fertility (38.6 percent and 41.9 percent, respectively). The Swazi, Pedi, Sotho, and Xhosa are located on the age at marriage/premarital fertility axis somewhat above the regression line linking all the groups (Figure 1). The groups with the highest levels of premarital fertility are also the groups with the highest age at first marriage: Ndebele, Tswana, and Zulu.

Correlation with age at marriage was high and positive (ρ = 0.758), but correlation with urban residence was curvilinear, with maximum values in the medium range (40 to 60 percent) for the Ndebele Zulu, Xhosa, and Tswana, and lower values for more rural groups (Venda, Tsonga, Pedi, Swazi) and other racial groups, which are primarily urban residents (White, Asian).

[1] The Colored (mixed) population of South Africa came into existence during the early period of European (Dutch) contact with the indigenous population, primarily Khoisan-speaking hunters and gatherers (Bushmen and Hottentots). The descendants of this population are physiologically and culturally different from the descendants of the African farming populations that moved into the area.

Figure 1 Correlation between premarital fertility and age at first marriage, South Africa



TANZANIA

Tanzania conducted three DHS surveys, in 1991, 1996, and 1999, plus two KAP-HS surveys in 1994 and 2003. The 1994 survey did not have maternity histories, and the 1999 and 2003 surveys did not provide information on ethnicity (Table 1). The 1991 DHS survey included 126 ethnic groups (S114), while the 1996 DHS survey included 112 ethnic groups (S117), with basically the same coding. The two surveys selected for this analysis (1991 and 1996) had large sample sizes that allowed for in-depth analysis of ethnicity.

Table 1 Sample size and main characteristics of DHS surveys, Tanzania

Tanzania	DHS 1991	KAP-HS 1994	DHS 1996	DHS 1999
No. of women interviewed	9,238	4,225	8,120	4,029
No. of ethnic categories, African	126	100	112	na
Percent other and unknown	3.7	5.9	6.7	

na = Not applicable

Tanzania has a large number of small ethnic groups that are well-documented in the 1991 and 1996 DHS surveys. The two surveys are compatible and, after combining the data, all ethnic groups with at least 200 women interviewed were kept for final analysis. This resulted in 29 groups, plus a residual category of "other and unknown" (Table 2). Although the two surveys are largely compatible, some statistically significant minor differences were found. These have no importance for this study. The only large group in Tanzania is the Sukuma, which accounts for one-sixth of the population. The other groups are much smaller but have sufficient women interviewed for statistical inference.

Table 2 Distribution of ethnic groups by survey, Tanzania

Ethnolinguistic group	DHS 1991	DHS 1996	P value	Significance
Sukuma	15.6	15.1	0.416	
Ha	4.3	4.5	0.561	
Makonde	3.5	3.8	0.185	
Chagga	4.7	3.6	0.000	*
Gogo	5.2	2.7	0.000	*
Zigua	1.8	3.6	0.000	*
Nyamwezi	2.7	2.2	0.039	*
Fipa	1.6	1.8	0.221	
Bena	2.9	2.5	0.172	
Shirazi	1.5	0.6	0.000	*
Iramba	1.8	2.1	0.142	
Ngoni	2.0	1.8	0.295	
Zaramo	1.5	1.7	0.197	
Hehe	1.6	2.7	0.000	*
Pare	2.4	2.2	0.291	
Nyakyusa	2.2	2.9	0.006	*
Luguru	1.7	2.0	0.233	
Haya	3.1	2.1	0.000	*
Sambaa	1.7	2.0	0.161	
Jita	1.9	1.3	0.001	*
Iragw	3.2	2.2	0.000	*
Makua	1.1	1.2	0.477	
Simbiti	2.7	0.2	0.000	*
Zanaki	1.7	0.5	0.000	*

Continued...

Table 2—*Continued*

Ethnolinguistic group	DHS 1991	DHS 1996	P value	Signifi-cance
Pogoro	1.4	1.2	0.104	
Ndengereko	0.9	1.2	0.059	
Kaguru	1.9	1.0	0.000	*
Mwera	1.4	1.4	0.771	
Masai	1.2	2.4	0.000	*
Other and unknown	20.8	27.5	0.000	*
Total	100.0	100.0		

*p <0.05

Premarital Fertility by Ethnicity

Premarital fertility is moderately high in Tanzania, with an average of 8.2 percent for all births and 20.0 percent for women. Age at marriage is medium (17.9 years), and the prevalence of premarital intercourse is high (57.1 percent).

One of the most interesting aspects of premarital fertility in Tanzania is the wide diversity observed, along with low correlation with age at marriage (ρ = 0.462) and urban residence (ρ = 0.346). The low correlation with age at marriage can be seen in Figure 1, where the 29 groups have a link with age at marriage, but are spread widely around it.

Table 3 Premarital fertility and nuptiality indicators, Tanzania

Ethnolinguistic group	Number of women surveyed	Percent urban	Median age at first marriage (years)	Percent age 40-49 never married	Percent premarital births	Percent women with premarital birth	Percent premarital intercourse
Sukuma	2,033	7.8	17.7	0.0	6.4	16.6	54.3
Ha	823	19.6	17.5	0.0	2.5	6.8	17.7
Makonde	693	27.4	17.2	0.0	5.6	11.0	47.1
Chagga	628	35.5	21.0	2.2	8.8	23.7	49.9
Gogo	543	19.3	18.1	0.0	6.8	19.0	56.7
Zigua	475	29.8	17.3	1.2	6.3	16.4	45.4
Nyamwezi	474	25.3	17.5	0.0	8.9	22.8	55.5
Fipa	444	18.4	17.6	0.7	6.9	18.9	39.5
Bena	389	21.8	19.7	2.7	10.3	26.0	50.4
Shirazi	379	28.5	15.7	0.0	1.7	3.8	2.6
Iramba	361	14.1	18.9	0.0	15.0	40.7	66.7
Ngoni	347	38.4	18.0	0.0	13.1	33.6	62.0
Zaramo	340	32.6	17.2	0.0	11.6	25.1	46.4
Hehe	327	27.9	18.7	1.9	10.0	25.4	50.7
Pare	320	28.0	19.8	5.3	16.7	38.8	62.3
Nyakyusa	312	41.2	17.6	2.0	8.6	17.7	32.2
Luguru	296	46.8	17.7	2.5	12.8	26.2	47.6
Haya	292	14.3	17.9	0.0	3.8	8.8	24.5
Sambaa	287	31.6	18.8	0.0	6.7	18.2	37.8
Jita	280	35.1	17.9	0.0	8.3	27.2	63.9
Iragw	276	35.0	19.8	0.0	11.0	23.7	59.9
Makua	271	16.0	17.3	2.3	10.1	24.2	64.2

Continued…

Table 3—*Continued*

Ethnolinguistic group	Number of women surveyed	Percent urban	Median age at first marriage (years)	Percent age 40-49 never married	Percent premarital births	Percent women with premarital birth	Percent premarital intercourse
Simbiti	262	53.6	17.3	0.0	8.5	21.8	46.4
Zanaki	236	19.7	17.3	0.0	11.0	27.9	56.1
Pogoro	235	36.7	16.8	0.0	10.6	27.7	48.5
Ndengereko	225	65.8	17.7	0.0	14.1	26.8	51.3
Kaguru	220	26.2	19.2	4.0	15.6	35.7	64.6
Mwera	375	24.8	17.3	2.0	9.4	22.1	58.6
Masai	209	0.3	16.3	0.0	5.4	10.8	46.3
Other and unknown	5,006	24.9	17.7	1.1	8.3	19.4	41.3
Total	17,358	24.2	17.9	0.9	8.2	20.0	47.1

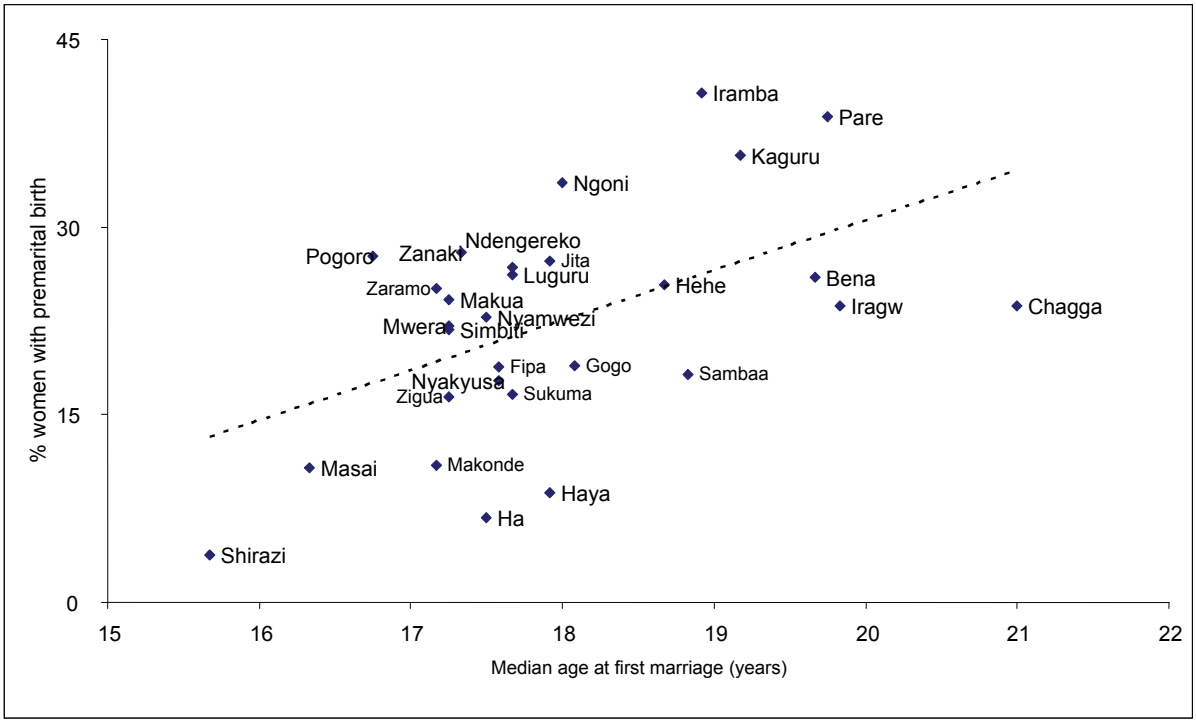
Source: Authors' calculations after merging data from 1991 and 1996 DHS survey.

Differentials by ethnicity are large in Tanzania. Premarital childbearing among women ranges from 3.8 percent (Shirazi) to 40.7 percent (Iramba). Similar differences are seen for prevalence of premarital intercourse (2.6 to 66.7 percent, respectively). Age at first marriage varies widely from 15.7 years (Shirazi) to 21 years (Chagga). The Shirazi, who live on the islands of Zanzibar and Pemba, are culturally conservative despite an above-average level of urban residence (28.5 percent). The Shirazi are Muslim and their history is quite different from that of most other ethnic groups on the continent.

There is no clear geographical pattern for premarital fertility. Groups with low levels of premarital childbearing were found on the islands (Shirazi), in the northwest (Ha, Haya), in the northeast (Masai), and in the southeast (Makonde). Groups with high levels of premarital childbearing were found primarily in the central part of the country (Ngoni, Kaguru, Iramba), but also in the North (Pare) and on the coast (Ndengereko). Groups with middle levels of premarital childbearing were found all over the country.

There is wide variation in residence among ethnic groups in Tanzania, with the Masai living almost entirely in rural areas (0.3 percent urban), and other groups living primarily in urban areas (Ndengereko, Simbiti). Among groups with average levels of urban residence (20 to 30 percent), premarital fertility is very low for some (Ha, Shirazi) and very high for others (Pare, Kaguru). The Ndengereko and Zanaki have similar levels of premarital fertility, but urban residence is high among the Ndengereko and low among the Zanaki (65.8 and 19.7 percent, respectively).

Figure 1 Correlation between premarital fertility and age at first marriage, Tanzania



TOGO

Togo conducted two DHS surveys, in 1988 and 1998 (Table 1). The 1988 DHS included 34 ethnic groups (RC110), and three main ethnic categories (V131). The 1998 DHS included five main categories (V131), with similar coding but no details on ethnicity.

Table 1 Sample size and main characteristics of DHS surveys, Togo

Togo	DHS 1988	DHS 1998
No. of women interviewed	3,360	8,569
No. of ethnic groups, African	34	na
No. of ethnic categories	3	5
Percent other and unknown	9.1	7.9

To merge the two data sets, the two additional main categories present in the 1998 survey were added to the three main categories in the 1988 survey by recoding data from the detailed 1988 ethnic categories. Once the recoding was done, the two surveys were compatible, and the five categories were retained for the final analysis (Table 2). The two surveys showed minor differences, some statistically significant, however, these differences were of no importance to the study. It should be noted that for the 1988 sample, the ethnic categories include from 4 to 10 groups, which reduces the specificity of the analysis.

Table 2 Distribution of ethnic groups by survey, Togo

Ethnolinguistic group	DHS 1988	DHS 1998	P-value	Signifi-cance
Adja-Ewe	47.6	44.2	0.001	*
Akposso, Akebou	4.1	4.2	0.906	
Ana-Ife	1.6	3.2	0.000	*
Kabye-Tem	21.0	25.9	0.000	*
Para-Gourma, Akan	22.2	14.6	0.000	*
Other and unknown	3.4	7.9	0.000	*
Total	100.0	100.0		

*p <0.05

Premarital Fertility by Ethnicity

Premarital fertility is moderately high in Togo, with an average of 5.6 percent for all births and 16.3 percent for women. The prevalence of premarital intercourse is high (63.6 percent), although median age at marriage remains at a medium level (18.6 years).

Level of premarital fertility is generally homogenous across the population, with little variation among ethnic groups (from 13.7 percent among the Para-Gourma to 14.4 percent among the Akposso-Akebou).

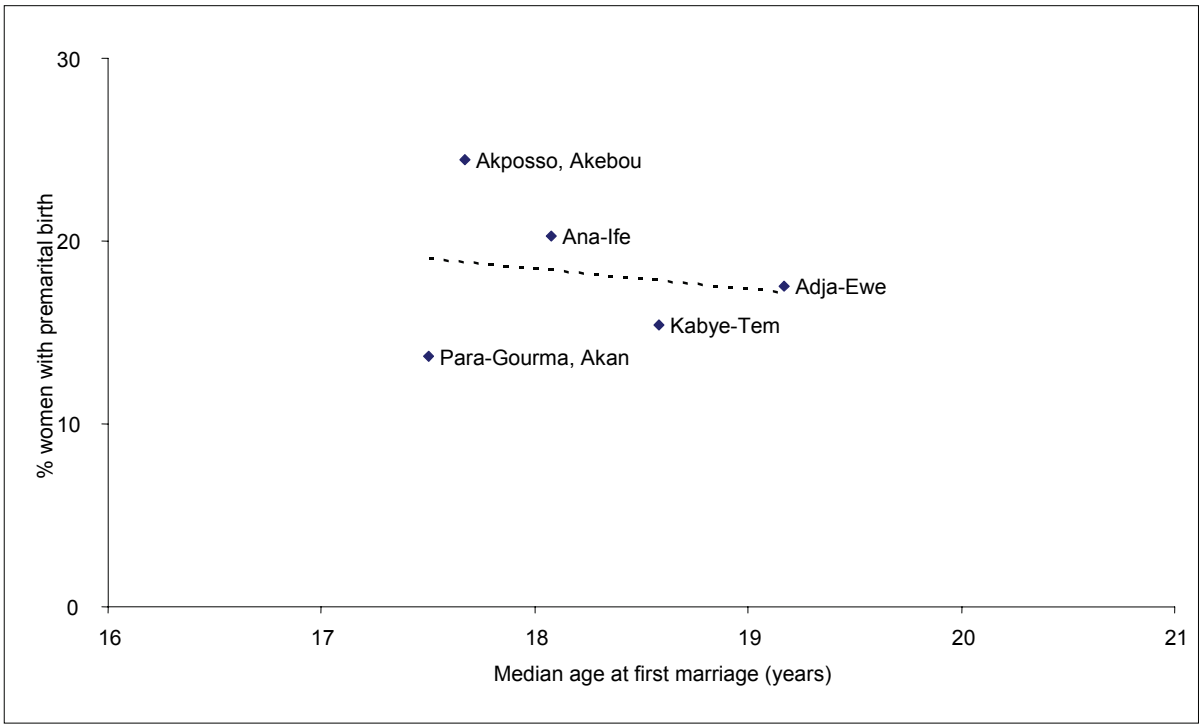
Correlations of premarital fertility with age at marriage (ρ = -0.181) and urban residence (ρ = -0.244) were small and negative. The low correlation with age at marriage is illustrated in Figure 1, where the five ethnic groups show basically no association with age at marriage.

Table 3 Premarital fertility and nuptiality indicators, Togo

Ethnolinguistic group	Number of women surveyed	Percent urban	Median age at first marriage (years)	Percent age 40-49 never married	Percent premarital births	Percent women with premarital births	Percent premarital intercourse
Adja-Ewe	4,293	43.1	19.2	0.6	6.3	17.5	70.0
Akposso, Akebou	444	21.6	17.7	0.0	8.2	24.4	70.2
Ana-Ife	286	38.6	18.1	1.4	5.8	20.3	64.8
Kabye-Tem	3,320	33.6	18.6	0.0	5.6	15.4	57.5
Para-Gourma, Akan	2,768	26.2	17.5	0.1	4.3	13.7	58.0
Other and unknown	818	42.2	18.1	0.0	4.1	11.3	53.5
Total	11,929	36.9	18.6	0.3	5.6	16.3	63.6

Source: Authors' calculations after merging data from 1988 and 1998 DHS surveys.

Figure 1 Correlation between premarital fertility and age at first marriage, Togo



UGANDA

Uganda conducted three DHS surveys, in 1988, 1995, and 2001 (Table 1). The 1988 DHS survey included 18 ethnic groups (V131); the 1995 DHS survey included 33 groups (V131) plus the language spoken by the respondent (SLANGRE); and the 2001 survey included only information on the language spoken in the cluster (SH053). The labels of ethnic groups were not provided in the code books for the first two surveys so, for this analysis, we relied on language spoken in the last two surveys.

Table 1 Sample size and main characteristics of DHS surveys, Uganda

Uganda	DHS 1988	DHS 1995	DHS 2001
No. of women interviewed	4,730	7,070	7,246
No. of ethnic groups, African	18	33	na
No. of languages spoken, African		6	6
Percent other and unknown	14.8	1.9	

Note: Ethnic group labels were not provided in the 1988 and 1995 surveys.

Fortunately, the last two surveys were compatible with respect to language spoken, and could be merged (Table 2).

Table 2 Distribution of ethnic groups by survey, Uganda

Ethnolinguistic group	DHS 1988	DHS 1998	P value	Signifi-cance
Ateso-Karamojong	6.8	7.8	0.028	*
Luganda	18.1	24.8	0.000	*
Lugbara	7.5	7.3	0.722	
Luo	12.6	9.7	0.000	*
Runyankole-Rukiga	19.2	16.8	0.000	*
Runyoro-Rutoro	6.5	5.2	0.000	*
Other and unknown	29.3	28.4	0.236	
Total	100.0	100.0		

*p <0.05

Premarital Fertility by Ethnicity

Premarital fertility is moderately high in Uganda, with an average of 6.2 percent for all births and 17.5 percent for women. The prevalence of premarital intercourse is high (46.8 percent), although median age at marriage remains at a medium level (17.6 years).

The prevalence of premarital fertility varies by ethnicity in Uganda, with levels ranging from 11.0 percent among the Runyankole-Rukiga to 32.7 percent among the Runyoro-Rutoro. The distribution of levels of premarital fertility is not continuous: four groups have rather low prevalence rates (Ateso-Karamojong, Lugbara, Luo,Runyangole-Rukiga), and two groups have rather high prevalence rates (Luganda,Runyoro-Rutoro).

The correlation of premarital fertility with age at marriage was negligible (ρ = -0.099) while the correlation with urban residence was average (ρ = -0.543). The low correlation with age at marriage is shown in Figure 1, where the six groups have basically no link with age at marriage.

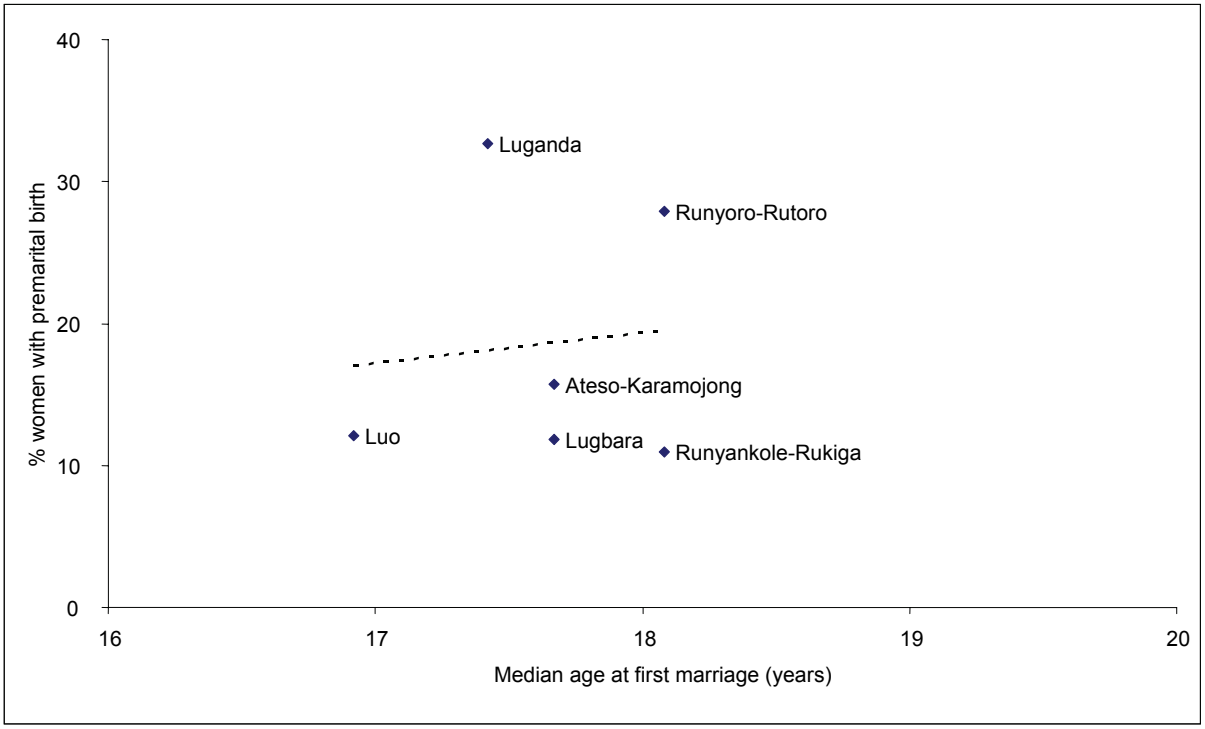
Table 3 Premarital fertility and nuptiality indicators, Uganda

Ethnolinguistic group	Number of women surveyed	Percent urban	Median age at first marriage (years)	Percent age 40-49 never married	Percent premarital births	Percent women with premarital birth	Percent premarital intercourse
Ateso-Karamojong	925	10.5	17.7	0.0	5.4	15.7	50.8
Luganda	3,466	38.0	18.1	1.2	10.7	27.9	59.2
Lugbara	852	9.6	17.7	0.0	4.9	11.9	26.2
Luo	1,388	8.7	16.9	1.8	4.4	12.1	44.7
Runyankole-Rukiga	2,594	7.9	18.1	0.6	3.7	11.0	33.1
Runyoro-Rutoro	821	10.7	17.4	0.0	11.7	32.7	57.8
Other and unknown	4,270	10.8	17.2	0.3	4.7	15.3	48.6
Total	14,316	15.8	17.6	0.7	6.2	17.5	46.8

Source: Authors' calculations after merging data from 1988 and 1998 DHS surveys

.

Figure 1 Correlation between premarital fertility and age at first marriage, Uganda



ZAMBIA

Zambia conducted three DHS surveys, in 1992, 1996, and 2001 (Table 1). All three had detailed information on ethnicity, and all three used the same coding. Merging the data was straightforward.

Table 1 Sample size and main characteristics of DHS surveys, Zambia

Zambia	DHS 1992	DHS 1996	DHS 2001
No. of women interviewed	7,060	8,021	7,658
No. of ethnic groups, African	58	50	50
No. of ethnic categories	7		
Percent other and unknown	2.6	2.7	2.7

Additionally, the three surveys were found to be compatible with respect to ethnicity, which, given the large number of groups, is unusual. After the data were merged, only groups with more than 250 women were retained for the final analysis (Table 2).

Table 2 Distribution of ethnic groups by survey, Zambia

Ethnolinguistic group	DHS 1992	DHS 1996	DHS 2001	Signifi-cance
Bemba	18.8	22.6	20.4	*
Tonga	14.4	10.9	11.6	*
Chewa	6.8	8.1	6.4	*
Lozi	5.1	6.0	6.3	*
Nsenga	5.8	5.9	5.0	*
Tumbuka	4.3	4.6	4.3	
Ngoni	4.1	3.4	4.0	*
Lala	3.8	2.8	2.6	*
Kaonde subgroup	2.7	2.4	2.9	
Mambwe	2.6	2.4	2.8	
Namwanga	2.0	2.6	2.9	*
Ushi	1.8	2.6	2.7	*
Lamba	2.1	2.1	2.2	
Luvale	1.9	2.2	2.2	
Lunda	3.5	2.5	3.7	*
Mbunda	1.5	1.7	2.5	*
Bisa	1.9	1.2	1.8	*
Lenje	1.7	1.7	1.3	
Other and unknown	15.3	14.1	14.3	*
Total	100.0	100.0	100.0	

*p <0.05

Premarital Fertility by Ethnicity

Premarital fertility is moderately high in Zambia, with an average of 7.1 percent for all births and 20.0 percent for women. The prevalence of premarital intercourse is high (49.9 percent), although median age at marriage remains at a medium level (17.6 years).

Differentials in premarital fertility by ethnicity are wide in Zambia, varying from 11.8 percent among the Mambwe in the North, to 46.3 percent among the Mbunda in the southwest (Table 3).

Table 3 Premarital fertility and nuptiality indicators, Zambia

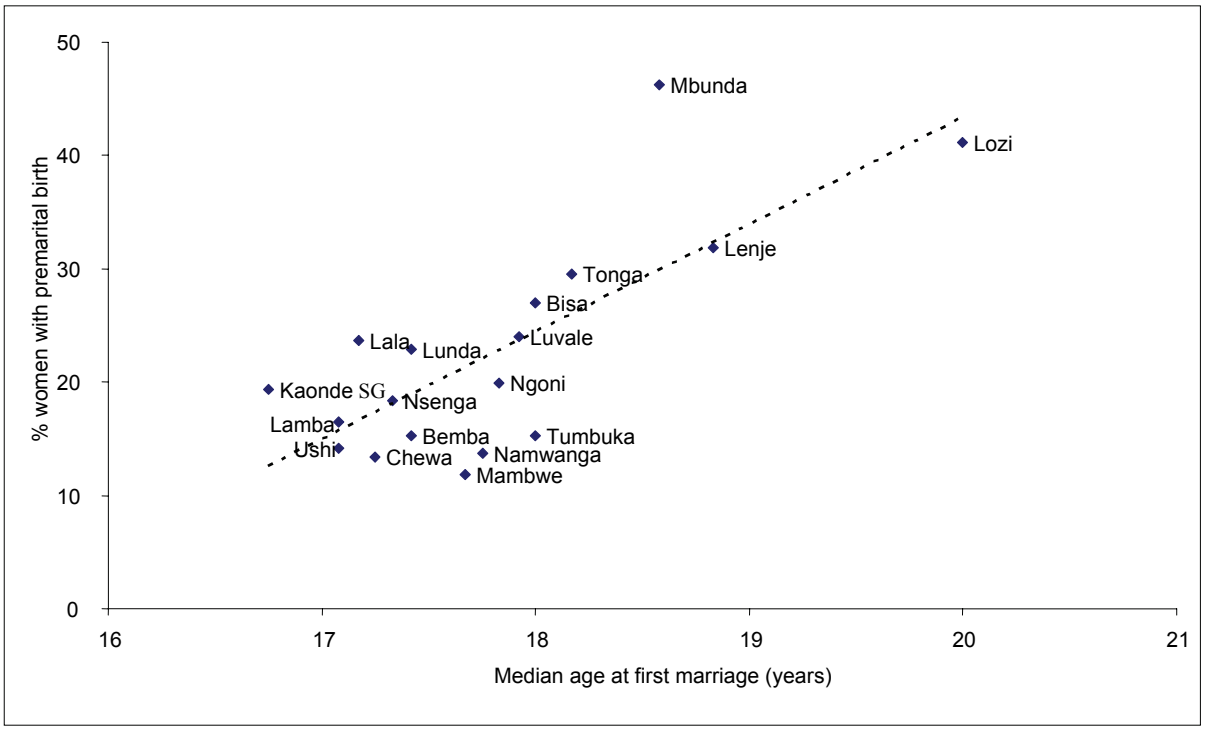
Ethnolinguistic group	Number of women surveyed	Percent urban	Median age at first marriage (years)	Percent age 40-49 never married	Percent premarital births	Percent women with premarital birth	Percent premarital intercourse
Bemba	5,445	59.3	17.4	0.6	5.2	15.3	43.7
Tonga	1,723	28.1	18.2	0.0	10.4	29.5	58.7
Chewa	1,077	30.8	17.3	1.1	4.6	13.4	39.1
Lozi	1,032	45.3	20.0	2.2	18.1	41.2	74.4
Nsenga	779	49.9	17.3	0.8	6.8	18.4	46.0
Tumbuka	624	52.4	18.0	0.0	4.7	15.2	42.3
Ngoni	530	50.8	17.8	1.7	6.8	19.9	48.1
Lala	1,292	49.5	17.2	0.5	8.7	23.7	55.1
Kaonde subgroup	603	43.4	16.8	0.0	6.7	19.3	55.4
Mambwe	368	45.4	17.7	0.0	4.1	11.8	41.3
Namwanga	381	53.5	17.8	0.0	5.0	13.7	41.8
Ushi	1,540	49.9	17.1	0.0	4.6	14.2	42.8
Lamba	417	50.4	17.1	0.0	5.5	16.5	41.8
Luvale	472	38.1	17.9	1.4	10.7	24.1	65.7
Lunda	1,916	31.6	17.4	0.0	7.8	22.9	59.1
Mbunda	401	7.1	18.6	1.4	19.5	46.3	78.1
Bisa	794	40.9	18.0	0.0	9.6	27.0	56.0
Lenje	256	48.7	18.8	4.4	12.6	31.8	70.7
Other and unknown	3,089	38.3	17.5	0.5	6.0	17.7	46.8
Total	22,739	45.4	17.6	0.5	7.1	20.0	49.9

Source: Authors' calculations after merging data from 1992, 1996, and 2001 DHS surveys.

Correlation of premarital fertility with age at marriage is high (ρ = +0.754) and groups are spread along the age at marriage axis from about 17 years (Ushi, Lamba, Kaonde) to 20 years (Lozi) (Figure 1).

Surprisingly, for a country that is relatively urbanized (45.4 percent) and industrialized (because of the copper mines), the correlation of premarital fertility with urban residence is strongly negative (ρ = -0.601). This finding is related to the heavy weight of southern groups that have low levels of urban residence and high levels of premarital fertility (Tonga, Mbunda) and northern groups that have high levels of urban residence and low levels of premarital fertility (Bemba, Tumbuka, Namwanga).

Figure 1 Correlation between premarital fertility and age at first marriage, Zambia



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