

A Decomposition Analysis of Early Marriage: Comparing women of Muslim and Christian Countries of sub-Saharan Africa

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Abstract

Using data from Demographic and Health Surveys, this study aims to identify the sources of the decline in calendar first marriage among Muslim and Christian women. Therefore, the decomposition method was used. The analysis shows that, with regard to Christian women, the decline in the age of entry into first union is due to a change of social structure, including a decline in the percentage of uneducated women in the female population. This implies an increase in the number of years of study: hence the decline in age at first marriage. With regard to Muslim women by cons, the fall schedule first marriage reflects a real change in women's behavior and not by changing the representation of different social strata within the population. Advanced decomposition shows that the observed change in general and Muslim women affects all social strata. This means a gradual decrease of the influence of context particularly religious, age at first marriage of women still remains largely influenced by religion. Thus, traditional values, which are the social order, such as the enhancement of early marriage, fall into disuse and shrink the evolution of society.

Introduction

The beginnings of fertility transition are a certainty today in Sub-Saharan Africa. Whatever the country, the determinants of fertility decline observed are almost the same. The closest to the farthest, these determinants are, among other things, increased contraceptive use most, entry into union less early, rapid urbanization, etc.. Which is indicative of profound changes taking place in this region of the continent. Indeed, we can see along side the decline in fertility, the transition of the marriage largely due to socioeconomic factors (including education for girls as well as growing economic difficulties) leading to a weakening of the traditional management of social life (Anthony, 2002). However, the rise of socioeconomic factors in explaining the observed changes varies according to the particular socio-cultural group because of the resistance of traditional values and beliefs of each group, and the social changes taking place cannot be the same way (Locoh and Sow, 2005; Rwenge, 1998).

The Demographic and Health Surveys over the past two decades reveal in sub-Saharan Africa for example, that in spite of a decline in fertility and nuptiality, entry into union still "early" in *mainstream Muslim countries* compared to *mainstream Christian countries* (table 1). According to the example of Senegal and Mali, we observe that the total fertility rate (TFR) and the age at first marriage remain respectively high and low compared to countries such as Kenya and Rwanda. *Are these changes the result of a simple modification of the socio-*

economic structure of these countries or a real change in behavior, reflecting a loosening of the embrace religious?

The influence of religion on marriage interacts with other variables such as the level of education and wealth index which play an important role in the so-called modern behaviors. This study therefore aims to measure the influence of religion on the evolution of the first marriage timing in relation to the evolution of the socio-economic structure of these countries.

Table 1: Evolution of age at first marriage and the TFR by country

Main religion	Country	Year	Age at first marriage	TFR
Christianism	Kenya	1993	18.8	5.4
		2009	20	4.6
	Rwanda	1992	20	6.2
		2010	21.4	4.6
Islam	Mali	1995	16	6.7
		2006	17	6.6
	Senegal	1992	16.2	6.0
		2011	18.5	5.0

Source: DHS

1. Determinants of marriage

The age at first marriage is an interesting indicator of the demographic status of a population because in one hand, it is very sensitive to socio-cultural and economic changes; and on the another hand, it regulates the fertility lack of family planning (Cherkaoui et al., 2001). Hertrich (2001) in a study using data from surveys and censuses of African countries between 1960 and 2000 shows, firstly, a general gain and less nuanced way of regional age at marriage for women in all parts of Africa and, secondly, a more diversified change on men. Deep social changes occurring within African societies. The main factors responsible for these are among others the development of a market economy, migration (particularly to the cities, creating contacts between different cultures, different ethnic groups), the arrival of the media in the daily populations, the emergence of models from very different societies (through education, religions from elsewhere, etc.) (Locoh and Sow, 2005). These changes materialize on the first marriage by a significant decline in age at marriage among both men and women but with notable differences.

According to several authors, the increase in age at first marriage for women is often linked to urbanization, higher education for girls, for women (especially in the modern sector of the economy). In contrast, for men, economic factors (problems of employment and housing) are most commonly cited to explain the decline in age at first marriage (United Nations, 1988). In addition, the decline of marriage increases on men certainly effects the age at first marriage for women (Antoine, 2002).

Urban life entails the adoption of new behaviors because the city is the place where traditional habits diluted in the mixing of populations and in contact with modernization. We note as well as a general, early marriages are more rural than urban.

Schooling and education are responsible for many changes in the behavior of individuals (Antoine, 2002). In fact, the level of education has an influence on female nuptiality. African nuptiality data shows that median age at first marriage increases with the number of years spent in school. This result on the one hand shows the difficulty of reconciling the school with the holding of a household and on another part, the decrease in the importance of marriage as the value of African society. In addition, a high level of education women are more likely to be employed in the modern sector of the economy and urban and thereby end up with social ambitions that reduce interest in marriage (Hertrich, 2001). For men, the economic crisis suffered by African countries in the early 90s led to the growth of age at first marriage because of the precariousness of life.

Numerous studies in Africa have highlighted the influence of cultural factors on demographic behavior (Rwenge, 1997; Zourkaléini, 2008; Boco and Bignami, 2008). The influence of religion in Africa on demographic phenomena, and marriage in particular, has not often attracted the attention of researchers. But yet, this variable may prove to be an important socio-economic and cultural differentiator (Akoto, 1990; Kouaouci, 1995). The Christian religion is primarily through the traditional cultural patterns which contribute to the weakening, whereas Islam is considered traditional with a strict commitment often called traditional values. Thus, because of cultural constraints that characterize their religion, we can anticipate a less raise of age at first marriage of Muslims compared to Christians.

2. Methodological aspects

2.1. Field of study and target population

This study analyzes the evolution of the calendar first marriage in Muslim and Christian countries of sub-Saharan Africa. The major difficulty raising such comparative approach is the choice of countries to study, given the religious pluralism that characterizes the majority of countries in sub-Saharan Africa. From Barrett¹ (1982) data, Barbier and Dorier-Apprill (1996) have nevertheless established a classification of countries according to the dominant religion. They thus highlighted a typology of three groups whose dominant religion in countries (more than 90% of the population), the majority religion in countries (between 50 and 90%) and countries with religious pluralism. Of this type and depending on the

¹Major Christian churches regularly publish yearbooks international status and movements within their churches. Muslim communities and traditional and other independent groups meanwhile have only a few figures from censuses specific religious issues. Thus, not only do these data are not comparable, but behave more numerous deficiencies in the data collection process. The source used for the selection of countries within the framework of this study is that of the World Christian Encyclopedia directed by D. Barrett in collaboration with the Free University of Louvain.

availability of data, the Demographic and Health Surveys (DHS) of the following countries were selected: Kenya and Rwanda, which are Christian countries, Senegal and Mali in the case of Muslim countries. DHS offers the advantage of a spatial and temporal comparison as standard. Furthermore, the observation period for the countries studied is at least 10 years.

The target population consists of women aged 25 to 49 years, having already had a first marriage² and who are Christian or Muslim.

2.2. Variables and analysis method

The study uses three types of variables: substantive, classification and control. The dependent variable is substantive or median age at first union that gives the age at which half of a cohort of women experienced their first marriage. Two variables are used for classifications namely the level of education and wealth index which shows the standard of living of the household. The control variable is about religion.

To measure the influence of religion on the calendar first marriage, and in relation to the evolution of the socio-economic structure, the study uses the simple and advanced decomposition. The decomposition analysis is a method to determine the source of change and to show how the change occurred in identifying groups having driven this change.

The formula of the basic decomposition is obtained by expressing the national performance as a weighted average of the performance of groups.

$$Y_t = \sum w_{jt} * y_{jt}$$

Where:

Y = national average for substantive variable (Median age at first union at the national level);

Y_{jt} = the substantive value of the variable for group j in year t (eg the median age of women who have no education at a given time t);

W_{jt} = the proportion of women belonging to the group j at time t (eg, the percentage of women with no education at a given time t).

Based on this formula, the national change is as follows:

$$\Delta Y = \sum \check{y}_j * \Delta w_j + \sum w_j * \Delta y_j$$

Total change (CT) = effect of composition (A) + behavior effect (B)

Effect of composition: It symbolizes the change due to a change in the statistical representation of various social strata within the population. Age at first marriage for example would fall because of the reduced number of uneducated women in the population.

² Or age at first cohabitation in some cases

Effect of behavior: It indicates a change of age at first marriage in various instruct whether or not, regardless of changes in their respective statistical weight in the population.

Disaggregating the effect of behavior at a finer level through advanced decomposition, we obtain three sub-components: the base effect, the differentiation effect and the residual effect of factors not taken into account according to the formula follows:

$$\Delta Y = [\sum w_j \Delta w_j] + [\sum w_j \Delta \alpha] + [\sum w_j x \Delta \beta] + [\sum w_j \Delta \mu_j]$$

$$\Delta Y = \quad A \quad + \quad \underline{B1} \quad + \quad \underline{B2} \quad + \quad \underline{B3}$$

Where:

B1 = Basic Performance: It represents a real change of age at first marriage, that is to say, a change that affects all social strata regardless of changes in their weight statistics in the respective population. In this study, such a change is attributed to a mutation in the cultural context particularly religious.

B2 = Effect of differentiation: It symbolizes a change (decline) growth more or less increased age at first marriage according to social rank (depending on level of education and standard of living).

B3 = Residual Effect: This is the change due to factors not taken into account in the study.

3. Results

3.1. Evolution in calendar first marriage by socio-economic factors

The age at first union has increased in all countries but still remain "early" for Muslim women compared to Christian women. However, the source of change seems to differ from one religion to another.

Indeed, as in Senegal, Mali, the variation of the statistical weight of each social group is very low or even zero in time. As an illustration, the percentage of Malian women with no education (84%) remained the same in both 1995 and 2006. Similarly, the percentage of Senegalese women from lowest wealth quintile households (22%) did not change between 1992 and 2011. And yet, the age at first marriage in these groups has increased year over the same period respectively. The gain in the calendar first marriage among Muslim women is due to a real change in behavior and not to a change in the social structure. Regarding Kenya and Rwanda by cons, the representation of various social strata lie and more specifically those at risk (uneducated women, from very poor households) has truly evolved over time which is not if the timing of first marriage. In Kenya, for example, the percentage of women with no education has declined from 26% to 8% between 1993 and 2009, while the age at first marriage was maintained at 17 over the same period. The conclusion here is that of a rising age at first marriage due to a change in the social structure rather than a real change in behavior.

Table 2: Evolution of the calendar of first marriage by socio-economic groups

CHRISTIAN COUNTRIES					MUSLIM COUNTRIES				
Countries	Median age	Percentage	Median age	Percentage	Countries	Median age	Percentage	Median age	Percentage
Level of schooling									
Kenya	1993		2009		Senegal	1992		2011	
No education	17	25.7	17	8.4	No education	15	82.6	17	76.6
Primary	18	53.9	18	57.7	Primary	18	10.8	19	17.2
More than secondary	20	20.3	21	33.9	More than secondary	21	6.6	22	6.3
Total	18	100	19	100	Total	15	100	18	100
Rwanda	1992		2010		Mali	1995		2006	
No education	19	46.8	19	22.6	No education	15	84	16	84.4
Primary	20	45.4	20	66.7	Primary	16	10.3	17	9.4
More than secondary	22	7.8	23	10.6	More than secondary	19	5.8	19	6.1
Total	19	100	20	100	Total	15	100	16	100
Wealth index									
Kenya	1993		2009		Senegal	1992		2011	
Lowest	18	21.8	18	15.8	Lowest	15	22.5	16	22.2
Second	18	20.4	18	22.4	Second	15	23.0	16	21.4
Middle	18	22.6	19	21.1	Middle	15	19.5	18	19.6
Fourth	18	20.8	20	23.1	Fourth	16	18.4	19	19.3
Highest	19	14.4	22	17.7	Highest	18	16.6	20	17.5
Total	18	100	19	100	Total	15	100	18	100
Rwanda	1992		2010		Mali	1995		2006	
Lowest	18	28.7	20	21.9	Lowest	15	22.6	16	21.1
Second	18	23.7	20	28.6	Second	15	19.2	16	21.7
Middle	18	12.5	20	14.7	Middle	15	20.1	16	20.1
Fourth	19	18.7	20	19.1	Fourth	15	20.2	16	19.9
Highest	20	16.4	22	15.7	Highest	17	17.8	17	17.2
Total	19	100	20	100	Total	15	100	16	100

Source : DHS

3.2. Results of simple decomposition

✓ Instruction

The gain in the schedule of primary marriage is largely due to a composition effect in Christian countries and mainly by behavior in Muslim countries.

Whether in Kenya or Rwanda, we see that the change is to say the decline in age at first marriage is due to a change in the social composition of the target population rather than a real change in behavior. The contribution of the effect of composition change is of the order

of 66% and 77% respectively, the gain of primary calendar marriage is due to a decrease in the percentage of women with no education in these two countries.

In Kenya, for example, the proportion of women with no education decreased from 25.7% to 8.4% between 1993 and 2009. Redistribution of uneducated women in graduate (or more primary and secondary) implies an increase in the number of years of study: hence the decline in age at first marriage.

In Muslim countries in contrast, the change is a real transformation of the behavior of women (93% in Senegal and Mali 100%) and not a change in the social structure. As in Senegal, Mali, uneducated women (followed by those with a primary level) are mainly the cause of entry into union more lately. Their contribution to the change being respectively 1.59 and 0.84.

✓ Socioeconomic Status

The change here is mainly due to the effect of behavior or performance, both in Muslim countries (97% in Senegal and Mali to 101%) and Christians (92% in Kenya and Rwanda at 101%), but the behaviors among different social groups are quite diverse from one country to another.

In Kenya, for example, the retreat schedule of the first marriage for women is due to the rich and richest socioeconomic groups, whose contributions to actual behavior (performance effect) was 0.22, 0.44 and 0.48 respectively. In Rwanda, however, the raise is explained by a change of behavior in all social classes, the poor and very poor women are known for their strong contribution (respectively 0.51 and 0.52) for the purpose of performance.

As in Rwanda, all social groups have actually changed their behavior in marriage in Senegal and Mali but rich women of Malian nationality. Exception of the latter group, all groups in Mali have contributed equally to the effect of performance. As in Senegal, the gain in age at first marriage is essentially due to Senegalese women living in wealthier households (with a contribution of 0.57) or average standard of living (with a contribution of 0.57).

Table 3: Results of simple decomposition

CHRISTIAN COUNTRIES				MUSLIM COUNTRIES			
Countries	Composition	Behavioral	Total change	Countries	Composition	Behavioral	Total change
Level of schooling							
Kenya	66%	34%	0,8	Senegal	7%	93%	2
No education	-2.95	0.00	-2.9	No education	-0.97	1.59	1
Primary	0.68	0.00	0.7	Primary	1.19	0.14	1
More than secondary	2.79	0.27	3.1	More than secondary	-0.08	0.06	0
Rwanda	77%	23%	0,4	Mali	0%	100%	1
No education	-4.60	0.00	-4.6	No education	0.07	0.84	1
Primary	4.28	0.00	4.3	Primary	-0.14	0.10	0
More than secondary	0.63	0.09	0.7	More than secondary	0.07	0.00	0
Wealth index							
Kenya	8%	92%	1,2	Sénégal	3%	97%	2,0
Lowest	-1.09	0.00	-1.1	Lowest	-0.05	0.22	0.2
Second	0.36	0.00	0.4	Second	-0.25	0.22	0.0
Middle	-0.28	0.22	-0.1	Middle	0.02	0.59	0.6
Fourth	0.44	0.44	0.9	Fourth	0.15	0.57	0.7
Highest	0.67	0.48	1.2	Highest	0.17	0.34	0.5
Rwanda	-1%	101%	1,8	Mali	-1%	101%	0,8
Lowest	-1.29	0.51	-0.8	Lowest	-0.24	0.22	0.0
Second	0.94	0.52	1.5	Second	0.38	0.20	0.6
Middle	0.42	0.27	0.7	Middle	0.00	0.20	0.2
Fourth	0.08	0.19	0.3	Fourth	-0.05	0.20	0.2
Highest	-0.16	0.32	0.2	Highest	-0.11	0.00	-0.1

Source : DHS

3.2. Results of advanced decomposition

By decomposing the effect of performance or behavior described above, it is noted that the increase in the age at first marriage is due to a base effect in Muslim countries and the effect of differentiation in Christian countries. However, the wealth index of women in Rwanda does not allow a differentiation in the behavior of women.

The evolution of marriage is linked to cultural changes more than logic demographic (Locoh, 2005). Loosening of the grip on the Islamic marriage affects all social groups and this can be analyzed as a gradual decline in traditional values and beliefs against modernization. The deduced therefore reappropriation by Muslim women of their bodies and increasing age at first marriage is shown. This shows that traditional values, which are the social order, such as the enhancement of early marriage, fall into disuse and shrink the evolution of society.

Table 4: Results of advanced decomposition.

Religion	Countries	Classification Variables	Base Effect		Différenciation effect		Residual effet	
			valeur	%	valeur	%	valeur	%
Muslim	Senegal	Level of schooling	1,83	95	-0,1342	-7	0,10	5
		Wealth index	1,2	60	0,74	37,00	-0,01	0
	Mali	Level of schooling	1,16	123	-0,11	-12	-0,11	-12
		Wealth index	1,2	147	-0,38	-47	0,01	1
Christian	Kenya	Level of schooling	-0,16	-20	0,551	70	-0,12	-15
		Wealth index	-0,4	-32	1,56	126	-0,02	-2
	Rwanda	Level of schooling	-0,16	-40	0,373	92	-0,12	-30
		Wealth index	2	111	-0,17	-10	-0,01	-1

Source : DHS

Conclusion

The aim of this study was to measure the influence of religion on the evolution of the calendar first marriage, in connection with the evolution of the social structure of the countries studied. Using data from Demographic and Health surveys, the decomposition method was used on a comparative approach. The analysis shows that, with regard to Christian women, the decline in the age of entry into first union is due to a change of social structure, including a decline in the percentage of uneducated women in the female population. This implies an increase in the number of years of study: hence the decline in age at first marriage. With regard to Muslim women by cons, the fall schedule first marriage reflects a real change in women's behavior and not by changing the representation of different social strata within the population. Advanced decomposition shows that the observed change in general and Muslim women is key to social strata (women educated and uneducated). This means a gradual decrease of the influence of context particularly religious, age at first marriage of women still remains largely influenced by religion. Advanced decomposition shows that the observed change among Muslim women is widespread and affects all social strata. This means a gradual decrease of the influence of context particularly religious, age at first marriage of women still remains largely influenced by religion. Traditional values, which are the social order, such as the enhancement of early marriage, fall into disuse and shrink the evolution of society.

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