Differences in attitudes towards the use of modern contraceptives among Kenyan ethnic groups, 1989 – 2008

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Short Abstract

In the last 30 years, Kenya has shown a significant reduction in its total fertility rate and an increase in the percentage of married women using modern contraception. This paper aims to investigate how the change in contraceptive behavior relates to ethnic groups, between 1989 and 2008. Kenya is characterized by a history of high fertility, rejection of modern contraception and strong sense of ethnic belonging. We used data from the five editions of Kenya Demographic and Health Survey (KDHS) and constructed a measure of "positive attitude towards modern contraception". We find that although ethnic background and sense of belonging is very important to Kenyans, it does not have a high correlation with positive attitudes today as it had in the recent past. We also find that differences in positive attitudes toward modern contraception have reduced considerably over the period investigated.

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Abstract

In the last 30 years, Kenya has shown a significant reduction in their total fertility rate and an increase in the percentage of married women using modern contraception. As a country marked by a history of high fertility, rejection of modern contraception and strong sense of ethnic belonging, this paper aims to investigate how the change in contraceptive behavior relates to the Kenyan ethnic groups, between the years 1989 and 2008. In order to measure the contraceptive behavior, we construct a new variable : positive attitudes towards the use of modern contraception. This variable combines other variables related to the use of, and intention to use modern methods. The hypotheses stated is that ethnic belonging is related to positive attitudes, however, this correlation would lose importance over time due to the advancement of policies and greater access to information. We used data from the 1989, 1993, 1998, 2003 and 2008 editions of Kenya Demographic and Health Survey (KDHS) and run a logistic model, in which the dependent variable was "the woman has a positive attitude or does not have one". We find evidence to support our main working hypothesis. In 1989, we find signficative differences among most ethnic groups in the logistic model with control variables. In 2008, the coefficients converged and ethnicity lost statistical significance. Thus, we note that, although ethnic belonging is very important to the Kenyan people, it does not have a high correlation with positive attitudes today as it had earlier. It is also observed that the difference detected between ethnicities has reduced considerably.

Keywords: Ethnicity. Cultural Demographics. Modern Contraception. Kenya.

1. Introduction

Kenya is a country located in the eastern portion of Sub-Saharan Africa and is marked by great ethnic diversity. The nation has had one of the most important reductions in fertility - 7.9 births per woman in 1977 to 4.6 in 2008 (Askew et al, 2009; KNBS et al, 2010) - and increase in the use of modern contraceptives - 4.4% of married women used modern contraceptives in 1977 compared to 38.9% in 2008 (United Nations, 2011; KNBS et al., 2010). However, this reduction in fertility and increased use of modern methods have distinct rhythms and levels between different population groups and between ethnic groups (Askew et al, 2009; Cleland, 2012; Khasakhala, 2011). This paper seeks to understand how positive attitudes towards modern contraceptive methods vary between ethnic groups. That is, the main objective is to determine if belonging to a certain ethnicity influences attitudes towards contraceptive use. If there is differential, we measure how much ethnic belonging affects this attitude. So, the question that the paper aims to answer is: what is the differential in the attitude to the modern contraceptive methods among ethnic groups in Kenya over the last 20 years? The hypothesis discussed here is that there is a significant difference between ethnic groups, however, this distinction suffers a reduction over time, being lower in 2008 than in 1989. This hypothesis is based on the improvement that the family planning policy passed between 1989 and 2008 and wider dissemination of information about modern contraceptive methods among people.

The positive attitude that the paper seeks to measure is a concept widely used in studies of Knowledge, Attitude and Practice (KAP). These studies investigate what people know about a subject (knowledge), how they feel about it (attitude) and what they do about it (practice). The KAP studies are applied in different areas of knowledge, but are particularly used in papers whose theme is sexual and reproductive health (Vandamme, 2009). According to Pelto et al. (1997) and Launiala (2009), the term "attitude" in KAP studies is usually related to "belief" and "feelings" about the use of contraception. In our case, we aim to measure this "feeling" about the modern methods among the Kenyan ethnic groups.

We measure positive attitude using indicator variables for individuals who have used it, currently use it, or intend to use modern methods, according to their ethnic group, our indicator of cultural aspects and behavior. The effect is controlled by several

variables that affect the use and the desire to use modern contraception, such as educational level, access to information, variables that indicate social networking, among others. It is interesting to note that the attitude towards the use of modern contraceptive methods is subject to change and is not determined by a rigid cultural structure and that does not tolerate deviant behavior among members of the ethnic group. Thus, it is possible that changes in the level of agreement with the use over the study period are observed.

This paper contributes to the discussion of the rapid decline in fertility and the increase in the use of contraceptive methods in Kenya., It also contributes to the discussion of the recent stabilization observed, trying to understand how this has been experienced by the different ethnicities. In the case of sub-Saharan Africa, although the area has passed through several changes regarding the socioeconomic modernization, culture remains a key aspect of reproductive behavior, which enhances the very high fertility. Modern contraceptives are used in order to space births and not to limit them, as it is common in Western societies marked by modernization (Moultrie, 2005; Bachrach, 2014).

As for ethnicity, it is important to emphasize that, although the ethnic group is determined by birth, it is affected by various socioeconomic factors, and their positive attitudes towards the use of modern contraceptive methods is socially constructed and it is not only determined by the group to which someone belongs. Recognizing that ethnic groups have different access to modern methods of family planning, it is intended to observe how policies are received by ethnic groups. With caution in relation to the political and economic context, the aim is to avoid what is pointed out by Hammel (1995) as spurious conclusions about the value of ethnic and cultural variables in situations where what stands out is the social or economic context. That is, although ethnicity is a determining social organization, for contraceptive behavior it is not enough to explain the whole process of desires and reproductive behavior. These desires and behaviors also depend on the social and economic course in people's lives.

This paper, in order to introduce, briefly, the sub-Saharan and Kenyan cultural context and to present the results is divided into 5 parts: (1) introduction; (2) contextualization; (3) research strategy; (4) results, and (5) conclusion.

2. Contextualization

2.1. Kenya and its ethnic groups

Kenya is composed of 24 distinct ethnic groups, where 9 of those consist of 85.7% of the local population, according to the 2009 Kenyan Census. These ethnic groups are called Kikuyu (17.2%), Luhya (13, 8%), Kelenjin (12.9%), Luo (10.5%), Kamba (10.1%), Somali (6.2%), Kisii (5.7%), Mijikenda / Swalihi (5, 1%) and Meru / Embu (4.3%). The remaining 14.3% of the inhabitants belong to other 15 ethnic groups (KNBS, 2010). The groups have different contraceptive and reproductive behavior, as shown in Table 1.

Table 1.
Prevalence of modern contraception use among married women and total fertility rate - Kenya, 1989 – 2008.

Ethnic groups/ Country	Measure	1989	1993	1998	2003	2008
Kikuyu	TFR	6.2	4.3	3.5	3.5	3.2
	% use of contraception	23.89	33.71	39.00	33.70	40.28
Luhya	TFR	7.7	6.5	5.2	5.5	5.0
	% use of contraception	11.67	18.27	20.20	21.33	27.30
Kalenjin	TFR	6.8	6.6	5.8	5.9	5.4
	% use of contraception	9.37	12.58	14.59	16.56	20.20
Luo	TFR	6.4	5.8	5.5	5.7	5.2
	% use of contraception	8.18	12.01	13.26	14.82	25.96
Kamba	TFR	7.4	6.3	4.7	5.2	5.1
	% use of contraception	10.45	17.45	20.37	21.09	27.13
Somali	TFR	3.9	2.9	5.7	6.6	5.6
	% use of contraception	6.65	37.39	2.76	1.63	2.73
Kisii	TFR	7.1	5.9	4.3	4.8	4.4
	% use of contraception	13.19	23.80	26.52	28.06	29.00
Mijikenda/ Swahili	TFR	6.2	5.4	5.6	5.7	5.3
	% use of contraception	8.26	10.07	12.07	13.02	16.19
Meru/ Embu	TFR	6.2	5.8	3.8	3.5	3.5
	% use of contraception	25.80	31.73	37.37	38.67	42.25
Kenya	TFR	6.7	5.4	4.7	4.9	4.6
	% use of contraception	17.90	27.30	31.50	31.50	38.90

Source: KDHS 1989, 1993, 1998, 2003, 2008.

As in the entire region of sub-Saharan Africa, Kenya has a higher proportion of women using modern contraceptive methods in urban areas (46.6%), women who live closer to the large cities (49.0%) among those with higher income (47.9%) and higher education (52.1%) (KDHS, 2008). In addition, it is possible to check in Table 1 that married women from the groups Kikuyu and Meru/Embu are those who use more modern contraception and who have a lower total fertility rate.

The ethnic groups, however, may differ in behavior and cultural values according to their context. The maintenance of these beliefs and values legitimizes and crystallizes the belonging to an ethnic group. With a sense of ethnic belonging strongly ingrained in sub-Saharan culture, the study of ethnicity is an important factor to show a design of family planning programs according to local culture (Garenne et al., 2002). Thus, it is essential to understand the cultural context of a community in order to succeed at a family planning program that seeks to answer an unmet demand and positive attitude to modern methods (Hennink et al., 2005 apud Mwaikambo et al., 2011). According to Hammel (1990), ethnicity is a marker of cultural values and customs, which distinguishes the behaviors and rules regarding reproduction. However, there is great difficulty in dealing with complex cultural contexts in demographic studies due to the complexity of the operationalization (Lesthaeghe, 1989 apud Kertzer, 1995;. Hammel, 1995; Greenhalgh, 1995).

Ethnicity is also an important instrument of social cohesion in many spheres of social life in sub-Saharan countries. Ethnic identification takes place by self-declaration about group membership in several countries in Africa. On average, 31% of Africans declare themselves belonging to an ethnic group as their most important group identification (Eifert et al., 2010). Emphasizing the focus country, Kenya, the notion of belonging to an ethnic group has great importance, with, sometimes, greater identification with the ethnic group than with the nation as a whole (Miguel, 2003). According to the 2008 Afrobarometer data for Kenya, 11% of respondents identified themselves as only belonging to the ethnic group, while 41% of the respondents felt identified by ethnicity and by country at the same level (Afrobarometer, 2008).

2.2. Pro-natalist context - Culture and Society

The cultural variation derived from a heterogeneous set of beliefs, values and traditional social norms, exerts strong direct and indirect influence on the behavior of fertility in sub-Saharan Africa, suggesting a regional demographic pattern. These beliefs observed by high fertility population delegate positives perception, resulting in a high number of children and sanctions the use of modern contraceptive methods (Vikram, 2012; Dynes et al, 2009;. Kaler et al., 2001).

Currently, few Africans are self-declared followers of a local belief, most of them are Christians or Muslims (Caldwell et al, 1987;. Yeatman et al., 2008). However, the

values regarding fertility, sterility and their morals are still strong (Frank et al, 1987;. Yeatman et al., 2008). These traditional beliefs are not unique to sub-Saharan populations, and are also observed between groups from the Middle East region, particularly among Muslims, and groups from North America, such as the Mormons (Alnuaimi et al, 2009;. Ezeh, 1997). Voluntary sterilization and the use of modern contraceptives are strongly sanctioned between traditional groups. These evidences demonstrate the great value given the high fertility in Sub-Saharan context.

Regarding cultural values, resistance to decreasing fertility would be grounded in social practices derived from the social organization, which is, essentially, patrilineal, in common use of the land and in women's responsibilities set asymmetrically in the context of gender relations. These questions work together with religiosity and should be taken into account in calculating the ideal number of children and their spacing (Frank et al., 1987).

Seen as the only well accepted form of control by the belief in ancestors, traditional contraceptive methods have always been highly valued in sub-Saharan context. These forms of contraception were considered efficient enough so the local population did not require modern methods (Caldwell et al, 1987; Frank, 1987). Traditional methods in Africa involve: (1) avoiding pregnancy through abstinence, prolonged lactation, and withdrawal, (2) induced abortions, (3) infanticide, (4) child abandonment, (5) delivery of the child to adoption. Among these only abstinence, prolonged lactation and withdrawal are well accepted socially (Frank, 1987).

Theoretical analysis of the choice of contraception and fertility dynamics show that social interactions have a fundamental role in explaining changes in patterns of behavior and reproduction (Vikram, 2012, Behrman et al., 2002). Decisions about fertility and contraceptive use are not made in isolation but within a social network. These can act from social learning or social influence changing or reinforcing concepts, building a joint evaluation, encouraging or constraining certain attitudes or operating on information exchange (Bongaarts et al, 1996;.. Montgomery et al, 2001). Thus, the concepts that affect the reproductive behavior are perceived and legitimized through interaction and social learning (Watkins et al., 1995, cited in Freedman, 1997). These cultural changes and dissemination of values through social interaction are corroborated by Hammel (1990), Bachrach (2013) and Greenhalgh (1995) who claim that culture is a

dynamic system which could change according to the experience of individuals who live within it. In other words, culture, being a set of values, norms and behaviors shared by a network that interacts (Barth, 1969; Geertz, 1989), can diffuse and determine contraceptive strategies through learning and/or social influence.

Within the context of local social dynamics, the demand and the use of contraceptives are increasing throughout sub-Saharan Africa, but it is higher in the eastern and southern part of the continent, where demand is sometimes greater than the use of modern contraception. In the case of Kenya, this can be verified by the Mijikenda and Swahili, among whom the use of modern contraceptives corresponds to 16.19% of married women and the unmet demand was declared by 19.36% of women in 2008 (KDHS, 2008). The highest proportion of unmet demand for modern methods was found among women with lower income, less education, and among those who have never used modern contraception (Machiyama et al., 2013).

Regarding access to modern contraception, training for the contraceptive providers is a key point (Ndegwa et al., 2008). This qualification is important for the client to have appropriate guidance on the use of the methods, their expected side effects, so women can make an informed choice of the best contraceptive for themselves (Valadez et al., 1997). Lack of appropriate guidance is more strongly perceived by adolescents who report hostile and inappropriate treatment by attendants (Caldwell et al., 2002). This restriction often leads to discontinuation of modern methods use and culminates in an increase in pre-marital fertility (Caldwell et al., 2002; Johnson-Hanks, 2003).

Another form of access to information is mass media, which is responsible for increasing the knowledge and promoting modern contraceptive methods, achieving different types of individuals and providing entertainment and information on issues that are taboo for some cultures (Mwaikambo et al., 2011). In Kenya, messages about modern contraceptives are routinely transmitted on the radio in English, Swahili and other dialects. With this, many women receive adequate information, reducing the rumors and myths that obstruct the acceptance of modern methods (Iyer et al, 2009;. Bongaarts, 2011). This greater access to radio in Kenya, leads to greater use of long-term contraception, according Magadi et al. (2003).

Facing various obstacles of access, information and social constraints, modern contraceptive methods are mostly used for monogamous couples, urban, more educated, who have not experienced the loss of children and whose husband approves of the use (Dynes et al, 2012;. Magadi et al, 2003; Campbell et al, 2013).

Next, the search strategy used to answer the question discussed about belonging to ethnicity and their positive attitude towards modern contraception will be presented.

3. Research strategy

In this paper we used the 1989, 1993, 1998, 2003 and 2008 Kenya Demographic and Health Survey (KDHS). We only considered women in the sample, since they are often the ones responsible for the effective use of method of contraception and they are those who suffer various types of constraints related to the use of the contraception (Campbell et al., 2006). As stated previously, the Kenyan population has a strong sense of ethnic belonging, which was taken as cultural characterization of the local population. Only the ethnic groups present in all KDHS editions were selected in order to make the results comparable over the period. The sample divided along ethnic lines is arranged as follows:

Table 2.
Distribution of women interviewed according to their ethnicity in the KDHS editions, Kenya – 1989-2008

Ethnic groups	1989	1993	1998	2003	2008	Total
Kikuyu	1,706	1,554	1,414	1,886	1,642	8,201
Luhya	1,217	1,216	1,142	1,230	1,373	6,178
Kalenjin	607	880	992	831	1115	4,425
Luo	1,039	859	1,074	984	1,098	5,054
Kamba	918	1014	1008	938	923	4,801
Somali	10	19	16	298	240	583
Kisii	405	544	860	466	579	2,854
Mijikenda/Swahili	307	490	391	407	430	2,026
Meru/Embu	463	521	564	589	535	2,673
Other	478	443	419	566	509	2,415
Total	7,150	7,540	7,881	8,195	8,444	39,210

Source: KDHS 1989, 1993, 1998, 2003,2008.

It is notable that the sample shows variations in the proportion of the ethnicities represented, especially, in the case of the Somali people. This one showed considerable growth between the 1998 and 2003 editions, which occurred due to the inclusion of the

Northeastern province in the sample, where most of the individuals of this ethnic group reside.

As stated before, the paper aims to measure positive attitude. As there is no specific questions that inquire whether the respondent has a positive attitude in the KDHS editions, we construct the measure by combining the method applied by Belo et al. (2004) and what is observed in the Kenyan context.

We use logistic models to analyze positive attitudes towards the use of modern methods . Logistic regression is the most appropriate way to accomplish this measurement, because the dependent variable is binary (the woman has or does not have a positive attitude toward modern methods) and there is no ordering of the value of these responses. This type of model provides as answer the odds ratio of an individual having positive attitudes, according to selected characteristics (Powers et al., 2007). The model has a dependent variable created from the combination of the following four questions about the use of modern methods and contraception preferences. They are:

v302: "Have you or your partner ever used (method)?"
v313: "Which method you are using"
v364: "Do you intend to use a method to avoid pregnancy at some point in the future?"
v363: "Which contraceptive method would you prefer to use?"

According Belo et al. (2004), by obtaining the indication of a modern contraceptive method for one of these questions, it is understood that the woman has a positive attitude. However, some women indicated that, although they have used modern contraceptive methods in the past, they replaced these by traditional methods or, in the future, they would prefer to use traditional or folk methods or they couldn't indicate a preferred method. For these respondents a negative attitude toward modern methods was assigned. It is important to highlight that the questions v363 and v364 were directed only to women who reported that they were not using contraceptive method in question v313. Box 1 shows how the dependent variable was constructed and the number of women interviewed who gave each of the combinations of answers:

Box 1.

Construction of the binary variable for positive attitude towards the use of modern contraceptives

Already used (v302)	Uses now (v313)	Use and intention to use (v364)	Preferred method for the future (v363)	Positive attitude	Sample of women interviewed
Never used	Don't use	Has no intention	NA	No	10,433
		Has intention	Traditional *	No	551
			Modern	Yes	7,586
			Don't Know	No	2,044
Traditional *	Don't use	Has no intention	NA	No	549
		Has intention	Traditional *	No	188
			Modern	Yes	943
			Don't Know	No	149
	Traditional*	Uses traditional *	NA	No	1,384
Modern	Don't use	Has no intention	NA	No	1,911
		Has intention	Traditional *	No	163
			Modern	Yes	3,714
			Don't Know	No	433
	Traditional *	Uses traditional *	NA	No	639
	Modern	Uses modern	NA	Yes	8,513

Source: KDHS 1989, 1993, 1998, 2003,2008.
NA = Not applicable
** Traditional or popular method.*

From the answers given to these questions the model was designed. It was established through a single database formed by the junction of the data of all five KDHS editions. As the variable of interest we have the interactive term built from the multiplication of each of the ethnic categories by the KDHS edition's year. This was made intending to see the evolution of positive attitudes towards modern contraception by ethnicity. The control variables selected were those that indicate social interaction ("She lives in the area of ethnic miscegenation"). It was also included the variable of "husband's education level". This information was selected because the education level is well discussed in the literature that refers to contraceptive behavior and it is the one that appears in all editions of the KDHS, making it comparable (Johnson-Hanks, 2003; Bongaarts, 2010; Machiyama et al, 2013). In this sense, the respondent's educational level is also included in the model ("Education level"). Some religions have a more traditional doctrine and deter the use of modern methods (Hogan et al, 2004; Caldwell et al, 1987), therefore, the variable "religion" is included as a control. The variables "type of city you live" and "hear radio" seek to indicate the access to information that women have. Variables of age and number of children were also included, since young and low parity women often do not use modern contraception in order to have a high number of children (Ojakaa, 2008; Askew et al., 2009; Kaler et al., 2001). In this way, these variables are important to control the effects as previously indicated in the

literature. Moreover, Cammack et al. (2001) Potter et al. (1987) and McDougall et al. (2009) developed models and similar discussions to measure the variation of family planning acceptance in Indonesia, rural Mexico and among abortion patients in Cambodia, respectively.

Where P is the probability of having positive attitudes towards modern contraception, the estimated logistic model is this:

Model: Positive attitudes towards modern contraceptive methods - KDHS 1989, 1993, 1998, 2003 and 2008

$Pr(Y=1|B) = P$

$\log[P/(1–P)] = \beta o + \beta_1$. Ethnic group + β_2. Year + β_3. Ethnic group * Year + β_4. Age + β_5. Number of children + β_6. Education level + β_7. Type of city you live in + β_8. Religion + β_9. Living in an area of mixing ethnicities + β_{10}. Hears radio + β_{11}. Husband's education level + ε_i

4. Results

We applied the logistic model to show whether belonging to an ethnic group impacts a positive attitude towards the use of modern contraceptive methods. To present the interactive terms, the odds ratio is calculated as follows:

$$\text{Odds ratio} = e^{(\beta \text{ Ethnic group} + \beta \text{ Year} + \beta \text{ Ethnic group *Year})}$$

For the interactive terms, the Kikuyu people and the year 1989 were taken as reference. So, the odds ratios of the 1989 column are main effects of ethnic groups and the remaining columns show the interactions.

Table 3.
Odds ratio of having a positive attitude according to the interactive terms of ethnicity and year – Kenya, 1989 - 2008

Ethnic groups	Year				
	1989	1993	1998	2003	2008
Kikuyu	Reference	Reference	Reference	Reference	Reference
Kalenjin	0.7371**	0.7803	0.6081	0.7490	0.8278
Kamba	0.3657***	0.9481***	0.7934***	0.6887***	0.9057***
Kisii	1.1642	3.0183**	1.5366	1.2301	1.3472
Luhya	0.8887	1.2113**	1.2581**	1.4120**	1.0346
Luo	0.5921***	0.8292**	0.7037	0.9352**	1.2008**
Meru/Embu	2.1663***	1.4300**	1.7308	1.4305***	1.8608**
Mijikenda/Swahili	0.4981***	0.5553	0.9292***	0.6238	0.8668
Somali	0.2725	0.8443	0.0726	0.1149	0.1187

Other ethnic group	0.7082**	0.7809	0.8299	0.6114	0.9805

Source: KDHS 1989, 1993, 1998, 2003,2008.
*Obs: *** significance level of 99%, ** significance level of 95%; * significance level of 90%*
Variables were controlled by respondent's level of education and her companion's level of education, age, religion, type of place she lives, if she lives in an area of mixed races, which frequency she hears the radio, number of children.

In 1989, only Meru/Embu women had a higher chance of accepting modern methods than the Kikuyu women, with statistical significance. The Kamba people were the ones that had lower chances of positive attitudes that year. In 2008, women belonging to Kalenjin, Kamba, Mijikenda/Swahili, Somali and other ethnic groups not classified kept presenting less probability of having positive attitudes towards versus the 1989 Kikuyu women. Although only the Kamba people presented statistical significance, this shows the strength of such ethnic groups toward modern contraception.

In 2008, the ethnic groups that were more likely to have positive attitude in relation to the 1989 Kikuyu women, that is, those who had the odds ratio value superior to 1, were the Kisii, Luhya, Luo and Meru/Embu people. According to Ndegwa (1997), such ethnic groups are associated with the political group Kenya African National Union (KANU), of the first president, Jomo Kenyatta, and current president, Uhuru Kenyatta. These factors may have contributed to greater use or desire to use modern contraception.

It is possible to see that in almost all ethnic groups the odds ratios of a positive attitude towards the use of modern contraception had increased. This increased chance of a positive attitude can be understood as an adaptation of the ethnic groups' context. This dynamic behavior verified in the ethnic groups was exposed by Barth (1969), Hammel (1990), Bachrach (2014), Greenhalgh (1995) and Geertz (1989).

The results in Table 3 also show that, in 1989, most Kenyan ethnic groups had 99% statistical significance - only the Kisii, Luhya and Somali women were not significant. However, as the years advanced, this observed significance was reduced or disappeared in some ethnic groups. It is notable that only the Kamba, Luo and Meru/Embu groups had some level of significance, in 2008. Observing the behavior of these people it is possible to verify that they have marked conduits towards the use of, or intention to use contraceptive methods. The Kamba and Luo people have a low percentage of women using modern methods, but have high percentages of intention to

use. The Meru/Embu women have, since 1989, high rates of modern contraception use. In other words, only the ethnic groups of more marked behaviors kept this characteristic important in positive attitude towards modern contraception. The only exception is the Somali group, which probably wasn't statistically significant due to their small sample. Interestingly, although it had no statistical significance, the respondents of this ethnic group are those who had the lowest positive attitude, sharply distinguishing itself from the other groups. Regarding the control variables, it possible to affirm that all followed what is presented by the literature. Moreover, much of those were statistically significant.

Next, the general conclusions of the study will be presented, highlighting the relationship of culture and contraception in sub-Saharan Africa and, in particular, in Kenya. It will also present the advances in family planning policy in the country and how different Kenyan ethnic groups behave regarding contraception.

5. Conclusion

Although Kenya is a country marked by high fertility intentions , we could observe a considerable reduction in the total fertility rate in a short period of time, as well as a significant increase in the percentage of women using modern contraceptive methods.

The logistic model presented results that corroborate what the literature affirmed about contraceptive behavior in Kenya. The results indicate that that women who are more educated, who live in more urbanized areas, with more children, younger women, with greater access to information and whose husband is more educated have a greater chance of having a positive attitude towards modern contraception. Regarding ethnic groups, these were more significant in the first year of the study, 1989, with statistical significance of 99% for almost all ethnicities. With advancing years, the coefficients converged, showing an approximation of the positive attitude pattern among ethnic groups. These coefficients also lost their statistical significance, indicating that ethnic characterization may have lost importance for individuals in relation to contraceptive behavior. This corroborates the hypothesis that an ethnic group reduces its impact on positive attitude observed. It was also possible to verify that the Meru/Embu population was the one that had higher odds of having a positive attitude towards modern contraception. In 1989, this population had 2.17 times the odds of having a positive

attitude compared to the Kikuyu population in that year. In 2008, the chance of positive attitudes continued to be higher than the population taken as reference (Kikuyu in 1989).

The results indicate that the attenuation of the importance of cultural factor with the advent of modernity corroborated, in part, the classical demographic theory of Notestein (1945), which was perpetuated by Davis (1963), Knodel and van de Walle (1979), Kirk (1996), Billari and Kohler (2004), among others. According to Notestein (1945), the use of modern contraception and the reduction of the total fertility rate would go that way continuously after started; however, there was a stabilization in the decline in fertility and in the increase of contraceptive use in the late 1990s and early 2000s. This stabilization was also observed among the Kenyan ethnic groups of the country and in relation to the positive attitudes towards modern contraception.

Although much of the difference that was observed between ethnicities may be a reflection of different access to family planning policies and adequate information in Kenya, ethnic groups exhibit a diversity that should be considered and respected when it comes to policies focused on contraception. That is, the cultural differences are remarkable in Kenya and in order to achieve success in a family planning policy, the various contraceptive behavior patterns must be observed. As pointed out by the international organization Pathfinder, increased contraceptive prevalence in Kenya depends on greater involvement of the government and reducing barriers to those wishing to use modern methods. These barriers can be physical - geographic distance - or symbolic - misinformation, constraints, restriction access (Ndegwa et al., 2008).

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