Living arrangements in Sub-Saharan Africa between ethnicity and modernization

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Introduction

In Sub-Saharan Africa the phenomenology of living arrangements is of great interest owing to the extraordinary diversification and complexity of the traditional family patterns. Ancient traditions and cultures have produced family forms (e.g., patrilineal, matrilineal or bilateral lineage patterns, co-residential or non co-residential polygamy, fostering) that do not conform to "western" categories and are difficult to be captured through large-scale international surveys (Gage 1997). The continuous socio-economic evolution and "globalization" interact with these cultural contexts introducing further elements of complexity and developing original dynamics that produce a variety of changes and novelties. In particular, the predominance of the enlarged family over the biological family is a feature that traditionally distinguishes the conception and the organization of the Sub-Saharan African family. It is a debatable question whether this feature is everlasting or it evolves with the deep economic and social changes occurring in Sub-Saharan African countries.

To explore these issues, we aim to analyze the living arrangements in several Sub-Saharan countries and in their main ethnic groups, attempting to enlighten the interaction between "modernization" and cultural heritage in shaping family patterns between 1988 and 2013. Our objective presupposes the identification and the description of the existing family patterns. We investigate how the characteristics of family patterns combine with the level of fertility and the degree of socio-economic development and how countries and ethnic groups resemble each other or differ with regard to these aspects.

A temporal perspective has been adopted, as well as the ethnic and rural/urban differentials. In fact, as cultural and economic changes usually begin in towns, the rural/urban contrast can be considered as a way of summarizing the impact of the ongoing social changes. The analysis refers not only to countries but also to ethnic groups because they are by definition culturally homogeneous aggregates of population

and may thus be considered as a proxy for all the norms and ideals that traditionally govern family constitution and organization.

Theoretical focus

Demographic investigations show that many changes are undoubtedly taking place in marriage and fertility patterns in Sub-Saharan Africa (Maffioli 2003). The predominance of lineage, the enlarged family (that was defined as including members who are not part of the biological group mother-father-children, Laslett 1972[1]) and its interests with respect to the biological family (parents and their children) are features that traditionally distinguish the conception and the organization of the family in this sub-continent. Cultural systems and customs that developed in the framework of traditional religions and the particular economic arrangements that regulate family life, above all in matrilineal regimes are at the basis of these conceptions and organizations (Caldwell and Caldwell 1987; Goode 1963; Goody 1989). It is a debatable question whether these features remain stable over time or evolve alongside the deep economic and social changes witnessed by Sub-Saharan countries in the past few decades.

According to a classic theory - originated from ethno-anthropological works but incorporated by demographers in the framework of demographic transition (Notestein 1953; Caldwell 1976) - modernization induces a process of "nuclearization", that is a growing spread of families formed by a single biological father-mother-children nucleus. More generally, an increased importance of the conjugal link with respect to other kinship ties is considered as an inevitable step in the modernization of society, which is inextricably bound up with a profound alteration of the traditional cultures. In this view, the strengthening of the link between the spouses, both in terms of affection and in terms of common economic interests, is the prerequisite for the onset of fertility decline. It is the spouses' perception of building together with the children an independent unit that has sole responsibility for its own destiny, which creates the conditions in which family planning acquires meaning. In this process, a particularly significant role is also to urbanization (Antoine and Herry 1983).

However, many authors have questioned the existence of a simplistic process of change from a mythical society composed of extended families to a "modern" situation of generalized nuclearity; conversely, they stressed other ongoing processes experienced by the Sub-Saharan African family, particularly the growth of non-nuclear and female-headed single-parent families (e.g., Locoh 1988; Cordell and Victor 1995). Other scholars have highlighted the persistence of strong kinship ties and of a solid network of rights and duties between members of the same lineage over and above the structural transformations of household groups that may occur for contingent reasons (e.g., Adepoju and Mbugua 1997; Marie 1997; Maffioli 2006). In short, the most widely accepted approach today appears to be the "systemic" one, according to which the emergence of new rules of social life implies the diversification of family forms and the strengthening of new configurations rather than the convergence on a single nuclear family model (Vignikin 1997). However, conceptual and definitional problems

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[1] Laslett (1972) classified 'enlarged families' in two categories: extended (lineally) and expanded (laterally). Many authors, however, use the term 'extended families' to indicate both categories, as a synonym for 'enlarged families'. The latter criterion is followed here.

undermining the comparability of the data seems are partially responsible for the impossibility of an easy definition of the question and the scarce empirical evidence collected on the subject in different countries appears to be controversial and inconclusive.

Data and research methods

Our analyses concerns ten countries in different geographical areas of Sub-Saharan Africa, where at least two Demographic and Health Surveys (DHS) were carried out between 1990 and 2013. In order to perform an explorative diachronic analysis, we consider, as first step, two different surveys for each country conducted in different years. The considered countries are namely: Benin, Burkina Faso, Cameroon, Ethiopia, Ghana, Kenya, Mali, Mozambique, Nigeria, Zambia. The selected countries differ from each other in historical experience, degree of economic and social development, and demographic conditions. They certainly provide an effective picture of widely prevalent situation, but cannot represent the whole sub-Saharan area.

We consider the most representative ethnic groups for each country (in all 38 ethnic groups), in order to ensure the reliability of the sample survey data.

Despite being designed for other purposes, the two editions of the DHS collected an extraordinary wealth of information internationally comparable about the households, which offer possibilities to examine the living arrangements even in a temporal dynamic perspective and which permitted us to construct a household classification loosely inspired by that proposed by Laslett (1972). In this way, we are not concerned with the family as a network of kinship, but as a group of persons living together, "a household", or a "co-resident domestic group": in fact, this is the only type of family that can be studied with DHS data. Actually, this definition of "family" can be inadequate in Sub-Saharan African contexts; however, DHS data make it possible to construct a typology, which provides an evaluation of the degree of "nuclearity" of the household. At the basis of this typology lies the concept of "family nucleus", defined as a group of persons linked by a relationship of reproduction or a conjugal tie. We classified all the households, which do not contain one or the other of these groups, as "non-nuclear". Among the family forms containing a family nucleus, we distinguish three different categories: the "one-parent household" (which are mostly headed by women), the "conjugal household", formed by a couple or a couple with offspring, and the "extended household", that is the polygynous household or the conjugal household with the addition of other related or not related persons. The extended families may or may not be multinuclear.

With reference to the used techniques of analysis, we perform firstly comparative and diachronic descriptive analyses within the same country and across countries to describe the processes of modernization and nuclearization. To this aim, we stratify the observed households according the previously described categories, stressing also the differences existing in the urban and in the rural contexts and in two subsequent survey years. Moreover, we highlight the variability by ethnic groups in the distribution of the different categories of households, considering the most recent survey year.

In order to investigate how the characteristics of family patterns combine with the level of fertility and the degree of socio-economic development and how countries and ethnic groups resemble each other or differ with regard to these aspects, we applied to the most

recent survey data the classical procedure of factor analysis with the principal components method (PCA), followed by an hierarchical classification analysis (cluster analysis). In the initial matrix of the PCA the 38 ethnic groups studied form the statistical units, which are described at macro-level by twenty-eight elementary indicators: twelve are concerned with socio-cultural aspects, five with types of household, six with women condition within/without the couple (highlighting their level of independence and empowerment), and five with union and fertility events (for a detailed list of indicator see table 2). The composition of synthetic indicators (factors or components), that take simultaneous account of the correlations of all elementary indicators, facilitates the exploration of the associations among variables and also, thanks to suitable graphical representation, the collocation of the observed ethnic groups in relation to those variables on the factor plane. Based on the principal components emerging from the PCA, we applied cluster analysis that creates partitions of ethnic groups that ensure the minimum intra-class and maximum inter-class variability. The partition in six clusters, obtained by using a Ward method, seems to be the best way to obtain a clear and synthetic schematization of the varied panorama of the family patterns in sub-Saharan ethnic groups. Though oversimplified, the picture which can be drawn has the advantage of defining typical family patterns and of clearly illustrating (or reasserting) some particular aspects.

Descriptive findings

Obtained results show (tab. 1) firstly the proportion of women living in an extended polygynous household that can be considered as an indicator of the nuclearization of the family, since it measures the permanence of traditional patterns, in the hypothesis that they were based on extended family. This typology is reducing over time in all considered countries even it remains still present mostly in the rural context.

Another interesting indicator is represented by the widespread of the percentage of female-headed of households. In this case, results do not support "modernization" hypothesis everywhere. The increase of such household typology is much more evident in the urban context and in particular in Cameroon, Kenya, Zambia and Mozambique.

The picture is however much more complex considering the household classification we constructed and presented above. Every country shows a typical pattern, a special mix of family forms, which is the result of the internal ethnic and rural/urban differentials. However, certain analogies can be found that reflect similarities of historical and cultural backgrounds, levels of development, and - only sometimes - geographical proximity. Mali and Burkina Faso show many extended and polygamous families, and few non-nuclear, single-parent households. Benin and Nigeria are characterized by intermediate values for all the family categories. Ghana and Kenya, display many one-parent and non-nuclear, but few extended families. Ethiopia and Zambia are distinguished by a prevalence of the nuclear family (but in Zambia there are also many non-poligamous extended family). Lastly, Mozambique combines significant levels of single-parenthood and non-nuclearity with a significant number of extended families.

The differences between urban and rural families are very marked in all countries, but they differ in sign and meaning: nuclear and polygamous households are more frequent in the rural contexts, except in the case of Namibia; non-nuclear households, single-parent households and other extended families are more frequent in the urban contexts.

Table 1 - Distribution of the household classification by rural/urban residence and two different years in ten sub-Saharan countries. Percentage values.

| Countries	Years	Non-nuclear household	One-parent household	Conjugal household	Extended household		Total	FH**	Polygynous wives***
					Polygynic	Other*			
Urban areas									
Mali	*1995*	12.8	10.0	37.7	11.1	28.4	*100.0*	14.2	35.8
	2012/13	2.2	10.0	40.5	14.0	33.3	*100.0*	11.5	15.3
Burkina F.	*1992*	20.9	9.9	23.7	11.8	33.7	*100.0*	12.8	30.9
	2010	4.2	15.4	27.4	16.3	36.9	*100.0*	16.7	13.0
Ghana	*1993*	36.2	29.6	22.5	0.8	10.9	*100.0*	41.7	21.4
	2008	11.7	33.7	35.7	1.8	17.1	*100.0*	44.7	6.1
Benin	*1996*	18.7	19.6	23.6	8.7	29.3	*100.0*	22.7	45.3
	2011/12	5.8	21.0	36.8	9.1	27.4	*100.0*	25.2	16.3
Nigeria	*1990*	*25.7*	13.9	35.5	7.3	17.6	*100.0*	18.7	34.0
	2013	7.7	18.0	49.6	10.5	14.2	*100.0*	23.0	13.3
Cameroon	*1991*	21.2	12.6	22.4	10.3	33.5	*100.0*	21.3	31.9
	2012	9.5	24.6	28.5	6.0	31.5	*100.0*	31.0	9.2
Ethiopia	*2000*	25.2	25.3	22.0	0.2	27.3	*100.0*	35.7	6.8
	2011	16.3	24.4	35.5	0.2	23.6	*100.0*	41.3	2.5
Kenya	*1993*	40.1	16.3	26.9	1.1	15.6	*100.0*	21.0	13.4
	2008/09	14.6	23.4	40.2	0.1	21.7	*100.0*	37.2	3.9
Zambia	*1992*	10.9	11.9	29.2	0.9	47.1	*100.0*	13.1	9.5
	2007	4.6	21.9	30.9	0.3	42.3	*100.0*	24.4	3.0
Mozambique	*1997*	4.5	18.5	20.2	2.3	54.5	*100.0*	21.5	10.3
	2011	7.2	27.2	26.2	0.7	38.7	*100.0*	37.8	6.9
Rural areas									
Mali	*1995*	6.7	4.2	49.7	24.4	15.0	*100.0*	6.7	46.8
	2012/13	1.1	5.6	48.5	32.8	12.0	*100.0*	6.5	34.1
Burkina F.	*1992*	6.0	4.0	37.2	33.4	19.4	*100.0*	5.0	55.3
	2010	1.2	6.2	36.8	43.6	12.2	*100.0*	6.5	41.1
Ghana	*1993*	29.1	24.9	29.9	4.9	11.2	*100.0*	34.6	30.7
	2008	7.1	27.6	39.4	7.7	18.1	*100.0*	33.5	15.3
Benin	*1996*	13.2	11.8	32.5	17.0	25.5	*100.0*	14.0	51.9
	2011/12	2.6	14.9	44.9	21.1	16.7	*100.0*	16.9	31.5
Nigeria	*1990*	13.9	10.1	41.6	18.1	16.3	*100.0*	13.4	43.0
	2013	4.0	10.5	44.6	29.2	11.7	*100.0*	12.8	30.5
Cameroon	*1991*	22.5	9.8	27.3	15.8	24.6	*100.0*	16.8	42.6
	2012	5.6	16.2	30.5	21.0	26.7	*100.0*	19.7	24.3
Ethiopia	*2000*	11.5	15.5	44.7	0.8	27.5	*100.0*	20.3	14.5
	2011	2.8	15.1	57.8	0.7	23.7	*100.0*	19.1	7.8
Kenya	*1993*	15.3	22.8	36.7	4.9	20.3	*100.0*	35.7	20.1
	2008/09	3.8	32.6	40.8	0.8	22.0	*100.0*	36.1	9.1
Zambia	*1992*	14.1	11.8	39.3	3.9	30.9	*100.0*	19.9	25.2
	2007	3.6	19.1	48.5	2.1	26.7	*100.0*	23.3	13.2
Mozambique	*1997*	4.7	13.6	40.6	11.9	29.2	*100.0*	24.7	23.4
	2011	5.6	22.9	43.0	2.7	25.8	*100.0*	34.1	16.7

Notes: Other* = Conjugal household plus other members; FH**= Female-headed household; Polygynous wives*** = percentage of women declaring that their husband has also other wives on the total respondent women (nor the husband or the other wives are necessarily living with the respondent woman)

The urban contexts are undoubtedly characterized by the spread of "individual" family forms (single-person, non-nuclear and single-parent households). However, there is no sign that the rural family patterns are following this example. Moreover, we can also observe an opposite tendency, with the extended households more widespread in towns than in rural areas. It seems, in fact, that the offering of hospitality to relatives external to the family nucleus is a custom of the better off families, which are more frequently

found in towns (Farina et al. 2001). For this reason the process of urbanization can sometimes lead to an increase - though not absolutely general and perhaps transitory - of the extended families. This suggests that in many cases extended and conjugal non-polygynic family households do not constitute separated and opposed patterns, but constitute parts of enlarged networks of kinship relations, that are still capable of efficient forms of solidarity. If this hypothesis corresponds to reality, we could well argue that extended families are actually playing an important role in determining the forms of adjustment to the social modifications produced by the process of modernization.

Confining our analysis to the last observed year in each country, the enormous variability by ethnic group shows the strong effect of ethnicity (fig. 1). Matrilineal and matrilocal ethnic groups confirm their typicality. Generally speaking, in the left side of the diagram there are the ethnicities with the largest quota of extended family households; in the right side the ones with the largest amount of one-parent households. The proportion of women in conjugal households varies between the 19% of the Beti (Cameroon) and the 57% of the Oromo (Ethiopia). Those in one-parent households range from the 3% of the Gourmatché (Burkina Faso) to the 39% of the Portuguès (Mozambique). The percentage of polygamous households is 0% among the Affar and Tigrie (Ethiopia) and 46% among the Gourmatché. We underline Yoruba and Peulh ethnicities that are present in different countries, but interestingly, present similar distribution of households. This picture let us to hypothesize that it does not support the classical theories on family change and does not suggest the existence of a process of nuclearization, but rather the persistence of traditional customs of family solidarity and the exchange of services among relatives.

Figure 1 - Distribution of the household classification in the main ethnic groups of ten sub-Saharan countries and in the last observed year. Percentage values.
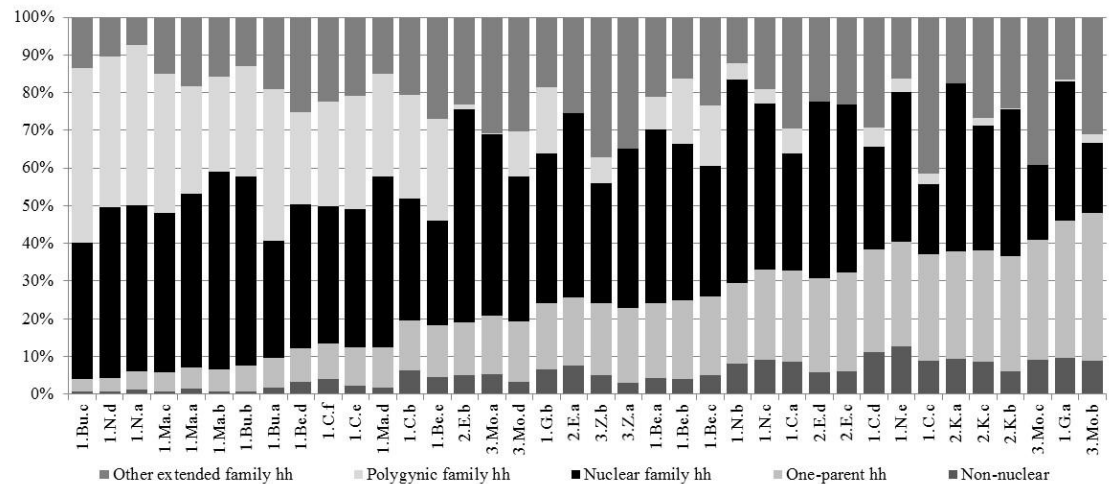
Areas: *1=Central-West African group; 2=Central-East African group; 3=South African group*

(1.Ma) Mali:	a.Bambara	b.Peulh	c.Dogon	d.Sanakole/Soninke	**(1.Bu) Burkina:**	a.Mossi	b.Gourmatché	c.Fulfuldé/Peulh	**(1.G) Ghana:** a.Akan b.Mole-Dagani
(1.Be) Benin:	a.Fon	b.Adja	c.Yoruba	d.Bariba	e.Batamaribe	**(1.N) Nigeria:**	a.Hausa	b.Yoruba	c.Igbo/Ibo d.Fulani e.Ijaw/Izon
(1.C) Cameroon:	a.Bamilike	b.Adamaoua	c.Beti/Bassa	d.Grassfields	e.Biu-Mandara	f.Arab-Choa/Peulh	**(2.E) Ethiopia:**	a.Amhara	b.Oromo c.Tigrie d.Affar
(2.K) Kenya:	a.Kamba	b.Luhya	c.Luo	**(3.Z) Zambia:**	a.Bemba	b.Tonga	**(3.Mo) Mozambique:**	a.Emakhuwa	b.Portuguès c.Xichangana d.Cisena

Note: Other extended family hh = Conjugal household plus other members.

Multidimensional findings

The results obtained through the application of the factor analysis with the principal components method (tab. 2), led us to consider the three principal components with an auto-value greater than one that explains 67% of the total variability.

Table 2 - Correlations between the scores of the first three synthetic factors (with an autovalue greater than one) and the elementary indicators of the factor analysis with principal component method (Varimax rotation*).

Characteristics	Description of the elementary indicators	Labels	Factor**		
			1	2	3
Socio-economic and cultural aspects	% illiterate among men	ILLEDM	-0.755	0.499	0.185
	% illeterate among women	ILLEDF	-0.723	0.576	0.137
	% relative gender difference of illiteracy	DRG1	0.107	0.519	0.166
	% men with high education	HIEDM	0.322	-0.809	-0.054
	% women with high education	HIEDF	0.260	-0.846	0.080
	% relative gender difference in high education	DRG2	-0.167	0.491	-0.442
	% urban population	URB	0.389	-0.643	-0.402
	% working in agriculture	AGR	-0.366	0.584	0.530
	% working in services and trade	TRAD	0.090	-0.074	-0.196
	% Muslims	MUSLIM	-0.783	0.291	0.160
	% Christians	CHRISTIAN	0.771	-0.401	0.071
	% Animists	ANIMIST	0.111	0.174	-0.579
Types of household	% non nuclear households	NNUC	0.676	-0.605	-0.057
	% one parent households	ONEP	0.787	-0.490	-0.136
	% nuclear households	CONJ	-0.459	-0.067	0.715
	% polygynic households	EXT-POL	-0.792	0.424	-0.214
	% other extended households	EXT-OTH	0.768	0.135	-0.236
Women within/without the couple	% married women not living with husband	NCONV	0.465	-0.428	-0.220
	% women married more than once	PLURF	0.526	0.288	0.453
	% widowed	WIDOVED	0.664	-0.062	-0.114
	% divorced women	DIVORCED	0.447	0.255	0.706
	% households with female head (on total households)	FH	0.811	-0.437	-0.055
	% of women among solitaries	FSOL	0.461	-0.676	0.189
Marriage and fertility	% men married before age 25	M<25M	0.139	0.651	0.044
	% women married before age 20	M<20F	-0.464	0.670	0.084
	Mean num. of children ever born to wom. aged 20-24	CEB2	-0.342	0.824	-0.111
	Mean num. of children ever born to wom. aged 25-29	CEB3	-0.451	0.811	-0.035
	Mean num. of children ever born to wom. aged 30-34	CEB4	-0.444	0.739	0.130
	Autovalues		*13.302*	*2.943*	*2.490*
	% Total variance		*47.5*	*10.5*	*8.9*
	% Cumulative total variance		*47.5*	*58.0*	*66.9*

Notes: *Varimax rotation was necessary to improve the interpretation; **factor1: polygynous family households vs non-nuclear/one-parent households; factor 2: gender parity vs gender disparity; factor 3: animistic tradition vs nuclear households.

The first factor, which absorbs almost half the total variability (47.5%), contrasts the polygynous family pattern (negative correlation) with non-poligamous extended family, single-parent, non-nuclear or female-headed family patterns (positive correlation). The former is associated with Islamic religion and illiteracy, while the latter with the Christian religion and high levels of independence and empowerment of the position of the women within the couple. These correlations do not necessarily imply a relation of causality, but rather reflect an existing reality.
The second factor (10.5% of the variability explained) contrasts the gender parity (negative correlation) with gender disparity (negative correlation). The former is

associated with high levels of education and urban context, while the latter is associated with high fertility, early marriage, agricultural environment, and a large unbalance of education by gender.

Lastly, the third factor explains 8.9% of the variability. It expresses particular aspects of modernization: the positive correlation is with the percentage of conjugal households and the negative correlation is with the spread of traditional religions (Animist).

This picture is completed by the inspection of the collocation of the 38 examined ethnic groups on the factorial plane formed by the first and the second factor (fig. 2 and 3). The considerable dispersion of the groups testifies to the wide variety of possible combinations of family forms and explicative factors and thus to the great ethnical heterogeneity to this respect. Analyzing individually the position of each collectivity, we note how some of them are particularly distinct from the others for same characteristics.

Figure 2 - Projections on the Cartesian axes of the three principal factors by 38 ethnic groups in 10 African countries and by six clusters.

■ cluster 1 ■ cluster 2 ■ cluster 3 ■ cluster 4 ■ cluster 5 ■ cluster 6
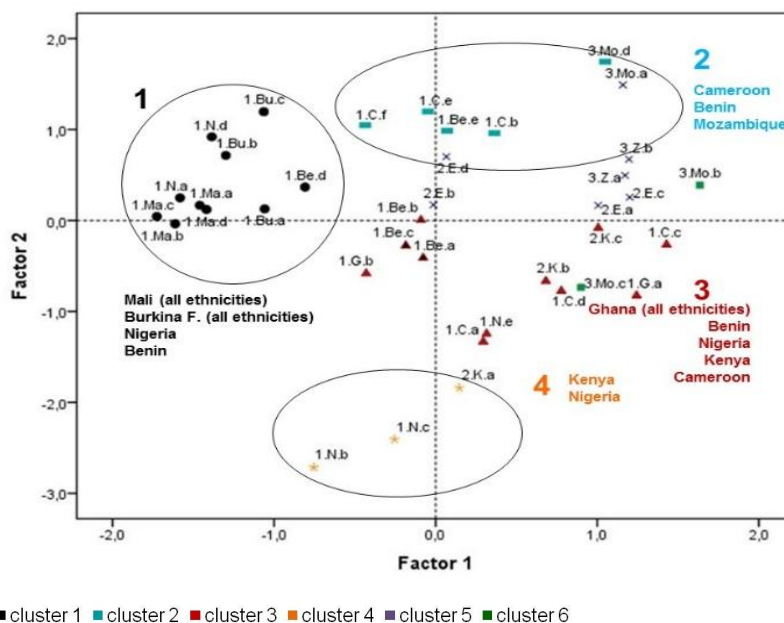
Note: see figure 1 for the full explanation of ethnicity/country achromous.

To better interpret the associations among ethnic groups on the basis of similarity with respect to the variables considered, we will employ the information that can be deduced from the division performed by cluster analysis. We opted, as previously specified, for a partition with 6 clusters (tab. 3 and appendix box 1, that shows also the list of the ethnic groups included in each cluster). The first four are well shown in figure 2.

Cluster 1 includes 10 ethnic groups (of four countries) and is characterized mainly by the polygynous family pattern; the spread of illiteracy is the highest for both gender and the high educational level is very low. The level of urbanization is the lowest. Moreover, we note a very high fertility and a high quota of women married before age 20. This cluster is essentially Islamic (84.3%).

Cluster 2 comprises 5 ethnic groups that represent a mixed pattern in a traditional context, with a equal partition between nuclear, polygynous and non-polygynous extended families. This cluster is "mixed" also with reference to religion. The

proportion of high education people reaches the lowest values among men and women and the illiteracy level is high. Scarce is the degree of urbanization, while the quota of people working in agriculture is high, as well as the fertility and the proportion of early marriages.

Table 3 - Mean values of the elementary indicators in the six cluster outlined through the cluster analysis and using the three principal component factors.

Variables	Clusters						Total
	1	2	3	4	5	6	
ILLEDM	82.2	20.1	47.7	5.1	39.0	7.3	41.7
ILLEDF	80.8	22.6	56.7	3.5	40.8	8.9	43.5
DRG1	-0.8	-3.3	11.1	-14.8	9.3	-15.8	0.0
HIEDM	2.6	10.6	1.7	18.1	5.8	9.5	7.0
HIEDF	1.0	5.4	0.5	15.7	4.1	5.6	4.2
DRG2	38.2	35.1	54.1	7.2	23.5	32.2	33.9
URB	22.2	46.9	32.9	64.3	29.0	72.5	38.0
AGR	58.8	30.1	47.8	18.9	59.8	9.0	43.5
TRAD	11.6	12.1	15.3	16.6	12.8	15.8	13.1
MUSLIM	84.3	10.5	32.1	14.5	31.8	4.3	36.7
CHRISTIAN	11.5	80.7	44.3	84.7	67.4	56.6	54.3
ANIMIST	2.9	5.7	12.6	0.6	0.3	25.8	5.5
NNUC	1.2	7.7	4.0	8.8	5.4	8.9	5.2
ONEP	6.3	25.7	12.5	24.7	19.7	35.5	18.2
CONJ	43.1	35.2	34.3	47.6	45.6	19.3	39.2
EXT-POL	34.1	7.3	24.9	2.7	1.2	1.1	14.9
EXT-OTH	15.3	24.0	24.2	16.3	28.2	35.1	22.5
NCONV	7.3	20.4	10.6	17.6	11.7	22.4	13.9
PLURF	9.5	14.9	18.1	6.1	23.2	12.3	14.6
WIDOVED	1.0	3.3	3.3	3.2	3.5	4.4	2.8
DIVORCED	0.6	1.1	2.2	0.8	5.7	0.6	1.9
FH	7.0	31.4	15.3	31.1	27.1	44.8	22.7
FSOL	0.3	2.2	0.7	3.9	1.4	1.6	1.4
M<25M	30.1	17.3	34.0	8.3	35.9	38.1	26.7
M<20F	47.1	12.6	39.2	5.9	29.5	21.9	28.2
CEB2	1.7	1.0	1.8	0.6	1.3	1.2	1.3
CEB3	3.3	2.2	3.5	1.7	2.7	2.0	2.7
CEB4	4.7	3.5	4.9	2.9	4.2	2.7	4.0

On the contrary, Cluster 3, with 11 ethnicities, is characterized by a mixed pattern in a modern context, where one-parent family, nuclear and non-polygynous extended families are spread. The quota of households with a female head is high and polygyny is not completely absent. The urbanization level is intermediate, and the fertility is moderately high, while the socio-economic variables show generally low values, except the level of high education among men. This is the second group with the most widespread Christianity (80.7%).

Cluster 4 comprises only three ethnic groups and represents the conjugal family pattern; moreover, in this group the non-nuclear family reaches its maximum, as well as the proportion of women among solitaires. Early marriage is rare for men and women and fertility is low. The spread of illiteracy is very low for both gender and the spread of the most educated people is the highest, with scarce difference between the two genders. This groups shows also the highest quota of Christians (84.7%)

An adding picture to individuate the residual two clusters is represented by the factorial plane formed by the first and the third factor (fig. 3).

Figure 2 - Projections on the Cartesian axes of the three principal factors by 38 ethnic groups in 10 African countries and by six clusters.

■ cluster 1 ■ cluster 2 ■ cluster 3 ■ cluster 4 ■ cluster 5 ■ cluster 6
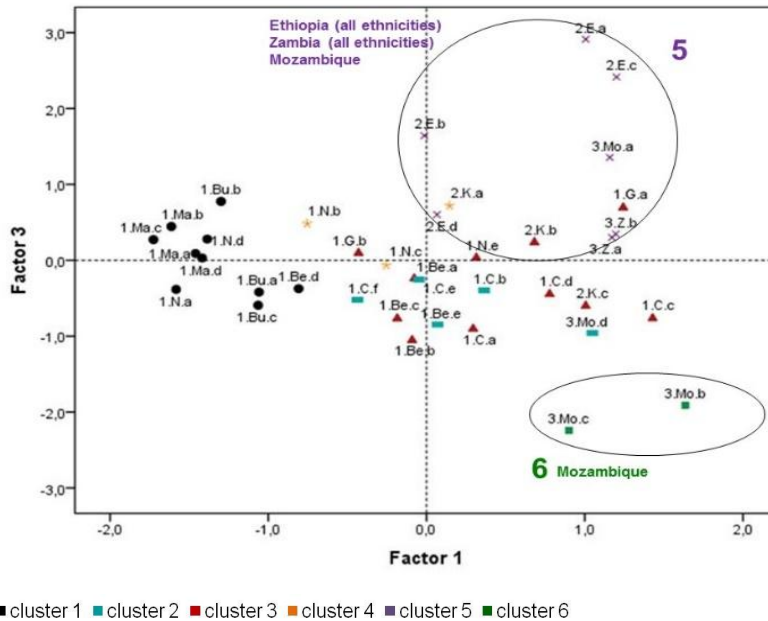
Note: see figure 1 for the full explanation of ethnicity/country achromous.

Here we outline the Cluster 5 (with 7 ethnic groups) that, together with Cluster 6, has the lowest value (1.2%) of polygynyc families, but it is different with respect to it for a very high spread of conjugal families. In this cluster, we note also low level of urbanization and of highly educated population, especially among women, as well as the highest quota of agricultural workers. Family behaviours are characterized by early marriage for the two genders and by high fertility.

Cluster 6, with only two ethnic groups, represents the "individual" family pattern: the nuclear households are less frequent than in the other groups. We observe maximum level of urbanization and low spread of illiteracy for both genders. Fertility is at a minimum, while the quota of Animistic religion and of one-parent households is the highest.

Discussion

Obtained findings let us to guess that in each observed country, the considerable rural/urban differentials create a different picture and have a particular meaning that is not strictly linked to socio-economic factors. Moreover, the three great family models of the "extended", "nuclear" and "single-parent" households do not have a clear territorial collocation, nor are they connected in a simple way to the degree of urbanization and development.

Thus, not only the existence of a single Sub-Saharan African living arrangement must be excluded, but also it is not even possible to propose general models for the great traditional geographical regions. Moreover, they do not seem connected in a simple way to the degree of socio-economic development and urbanization. Overall, the great variability of living arrangements observed at national level is not sufficiently explained

by modernization factors nor by the spread of the different religious confessions. In effect, the factor analysis carried out fully highlight the heterogeneity within each country and among ethnic groups. These results confirm the previous quoted researches that underlined the presence in the sub-continent of a process of growing variability of living arrangements and the increase of new family models, rather than the existence of a convergence process on a single nuclear family pattern.

On the other hand, ethnic background is confirmed as an extremely valid interpretative key, that should accompany the classical variables of modernization (i.e., urban/rural residence, literacy), in order to understand the cultural substrate on which the evolutive factors brought by globalization act. The suggestion derived from the clusterization is that each ethnic group has a coherent body of norms that are still capable of guiding individual behaviour in such a way that, on an aggregate level, the imprint of the basic culture is evident also independently of circumstances of great weight and significance such as residence, religious affiliation or educational level.

The overall results of the factor investigation on the interrelationships between modernization, family structures and fertility behaviour indicates the propositions of the classical theory do not really reflect the Sub-Saharan situations and dynamics. Conversely, living arrangements follow original paths that are different for different ethnic and social groups. At best, the process of family "nuclearization" is in its very early stages and it is not observable in urban realities, where it is eventually hidden by dynamics linked to urbanization movements. Moreover, to date a predominance of conjugal families has not involved a declining fertility, while is on the contrary far more associated with higher fertility than is the predominance of extended families. However, these results do not justify the definitive abandonment of the hypotheses formulated by the classical theory. It can only be asserted that the modernization of society certainly plays a great part in the trends of living arrangements, but family change will probably follow original paths that are specific to different ethnic and social groups.

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Appendix box 1 - Synthetic description of the six cluster outlined through the cluster analysis and using the three principal component factors. 38 ethnic groups in 10 African countries.

Ethnic groups	Characteristics of the family pattern and of the socio-economic development
1° cluster - 10 ethnic groups: - All selected ethnic groups of Mali and Burkina Faso; - Bariba (Benin); - Hausa and Fulani (Nigeria).	*Polygynic family pattern:* The spread of illiteracy is the highest for both gender and the high educational level is very low. The level of urbanization is the lowest. Very high fertility and quota of women marriage before age 20. Essentially an Islamic group (84.3%).
2° cluster - 5 ethnic groups: - Batamaribe (Benin); - Adamaoua-Oubangui, Biu-Mandara and Arab-Choa/Peulh/Haous (Cameroon); - Cisena (Mozambique).	*A mixed pattern in a traditional context:* It is a mixed pattern with reference to religion. The proportion of high education people reaches the lowest values among men and women and the illiteracy level is high. Scarce is the degree of urbanization, while the quota of people working in agriculture is high, as well as the fertility (highest value for CEB4) and the proportion of early marriages
3° cluster - 11 ethnic groups: - All selected ethnic groups of Ghana; - Fon, Adja and Yoruba (Benin); - Ijaw/Izon (Nigeria); - Bamilike/Bamoun, Beti/Bassa/Mbam and Grassfields (Cameroon); - Luhya and Luo (Kenya).	*A mixed pattern in a modern context:* The quota of households with a female head is high and polygyny is not very absent. Urbanization level is intermediate. The socio-economic variables show generally low values except the level of high education among men. Fertility is moderately high. This the second group with the most widespread Christianity (80.7%).
4° cluster - 3 ethnic groups: - Yoruba and Igbo/Ibo (Nigeria) - Kamba (Kenya)	*The conjugal family pattern:* The non-nuclear family reaches its maximum, as well as the proportion of women among solitaires. Early marriage is rare for men and women. Fertility is low. The spread of illiteracy is very low for both gender and the spread of the most educated people (male+ female) is the highest, with scarce difference between the two genders. 84.7% of Christians.
5° cluster - 7 ethnic groups: - All selected ethnic groups of Ethiopia and Zambia; - Emakhuwa (Mozambique)	*The absence of polygyny:* Observes low level of urbanization and the highest level of agricultural workers. Early marriage for the two genders and high fertility. Low levels of highly educated population, especially among women.
6° cluster - 2 ethnic groups: - Português and Xichangana (Mozambique)	*The "individual" family pattern:* The nuclear are less frequent than in the other groups. We observe maximum level of urbanization and low spread of illiteracy for both genders. Fertility is at a minimum.