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THE MARRIAGE SYSTEM IN GREEK THRACE:
A SAMPLE OF MARRIAGES FROM THE DEPARTMENT OF RHODOPI. SPATIAL AND CULTURAL ASPECTS

(Séance / Session 3)

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Abstract

Based on civil registry data, the populations of several settlements of the Department of Rhodopi with discrete socio-economic, cultural and historic background were studied. The analysis focused on the marriage patterns of these populations, especially on the mean age at marriage of the spouses, the mean age of the mothers at first and last child, the reproductive span, the children ever born and other parameters of reproduction. Several changes in the marriage patterns were observed through time, denoting the ongoing fertility transition. The cluster analysis that was carried out revealed convergence and divergences between the populations concerning their marriage patterns.

Keywords

Greek Thrace, demography, marriage patterns, Roma, Pomaks, Muslims, cluster analysis

Introduction

Analyzing the marriage patterns of a population is a quite old and difficult venture. Since the time of Davis and Blake (1956) all the attempts to clarify a model concerning marriage, sexual behavior and reproduction (Bongaarts, 1978; Campbell and Wood, 1988; Wood, 1994; Stover, 1998 etc.) are mainly based on the notion of proximate variables, i.e. on a group of parameters - like marriage duration, contraception, lactation infecundity etc. - that control fertility the final outcome of the biological process of reproduction. As Roth (1999) notes, quite recently the inclusion of cultural anthropology in the demographic research has shifted the focus of analysis from the proximate to the so called distal variables; those actually act on the proximate variables and determine the final outcome of fertility. Among them culture, economy, environment, genetics and physiology may be included. In anthropological demography culture is then a distal variable which determines the action of the proximate ones, which on their turn represent the biology of reproduction expressed in terms of age at birth of the first child, lactation duration etc. (Roth, 2004). On the other hand humans can be seen as opportunistic living organisms, which respond to the environmental stress and develop new adaptive reproductive strategies and behaviors (Turke, 1989; Boergehoff-Muelder, 1998; Mueller, 2001; Potts, 1997; Kaplan and Lancaster, 2003; Bates, 2005). Then culture becomes a proximate variable and not a distal one because it is the outcome of the biological evolution and adaptation to different environments.

In any of the approaches then, reproduction is considered to be a multivariate phenomenon which embraces all the aspects of the human existence. Inevitably it's a matter of political economy (Kertzer, 1995), social and cultural institutions (McNicoll, 1994; Hammel, 1990), gender relations (Greenhalgh, 1995), agency (Carter, 1995) etc. But in the core of the reproductive processes the biological nature of our species is abutted, not only because procreation is basically a biological phenomenon but also because of the adaptive nature of the developed reproductive strategies and human culture. In that way demographic behavior is an adaptive response of humans to the changes of the physical and anthropogenic environment. As adaptive it cannot be a linear unambiguous developmental process, on the contrary it would keep its dynamic character for as long as the environment changes.

However, it is rather obvious that demographic behavior can be better understood when research focuses on small populations where it is easier to detect and isolate the agents that affect it. In this paper, the demographic characteristics of the marriage system will be examined in a set of populations from the Department of Rhodopi in Greek Thrace. These populations were collected, mainly, with the appliance of cultural, socio-economic and historical criteria; its two Muslim populations from Rhodopi lowlands, two of Roma origin, two Christian and two mountainous populations (Pomaks). Analysis will be carried out for the mean ages at marriage of the spouses, the mean age of mother at first and last birth, the reproductive span of the mother, the children ever born and several other characteristics of the marriage system like divorce rate etc. Finally demographic convergences and divergences between these populations will be checked.

One of the most influential methods of classification of marriage patterns is that of Hajnal (1965), which contributed a lot in the understanding of family structure of the past. Based on the mean age at marriage of women mainly and the proportions of permanent celibacy of a population, he categorized

the European family system in two discrete types: the Western one, where permanent celibacy and mean age at marriage were high, and the Eastern one where the exact opposite situation was evident. In this attempt, European populations were clustered on the either side of a conceivable line between Trieste and St Petersburg. Later on, Laslett (1983) proposed an extension of the existed Hajnal's classification to four categories: the Western, the Middle, the Mediterranean and the Eastern marriage pattern. The main demographic variables used for this classification were age at marriage (especially that of women), age difference of the spouses, proportion of permanent celibacy, proportion of remarried widows and several others concerning the proportion of the stem families etc. In the matter of fact Laslett's and Hajnal's classifications constitute a clustering method based on qualitative information which on its turn is estimated with the aid of quantitative data. Exactly because of this artificial reduce of the actual information they are not able to measure the magnitude of the difference found in two populations, rather they are aimed to categorize them in larger groups of more or less similar qualitative characteristics. On the other hand, several scholars not only criticize these classifications on a variety of grounds but also a repertoire of marriage patterns outside the range of the four categories has been found in several populations (for example see Kertzer, 1991; Goody, 1996; Rettaroli, 1990; Kertzer and Brettel, 1987 etc.), which indicates the exploratory deficiency oh these methods.

That's why that we applied, instead of Hajnal's or Laslett's classifications, more sensitive exploratory methods as is the typical hierarchical cluster analysis procedures in order to find possible spatial and cultural resemblances and differences in the marriage patterns of the studied populations. In statistical exploratory studies a multivariate set of data is used in order a correlation matrix to be produced. Based on that matrix, various methods of grouping variables, according to the magnitudes and interrelationships among their correlations have been developed. These methods are generally known as cluster analysis (Sokal and Rohlf, 1995), and they are aimed to identify relatively homogenous groups of cases (or even variables) in a data set, based on selected characteristics of these cases. Hierarchical cluster analysis methods form the final classes (clusters), i.e. the finally grouping of the different cases or variables, either by hierarchically grouping sub-clusters or by splitting parent clusters (Hand, 1981). In theory, the agglomerative clustering method used here begins with a number of sub-clusters consisting of one point each, then these are combined to form larger sub-clusters, and then these are combined to form even larger ones, and so on until the desired number of clusters has been achieved. At each step the more similar sub-clusters are combined (Hand, 1981). The algorithm of the SPSS 11 statistical package used for cluster analysis in this paper, starts considering each case as a separate cluster and then combines clusters until one is only left. Of the various clustering methods we have used that of Ward, combined with Euclidean distances (see Hand, 1981, p.p.153-185) because they gave the best results. The final result of hierarchical cluster analysis is the production of a dendrogram, which is the graphical summary of cluster solution. In a dendrogram cases are listed along the left vertical axis, the horizontal axis shows the distance between clusters when they are joined. We have to note that because of the "scaling differences" of the variables used in the analysis (for example of the mean age at first child and the children ever born), these were standardized to z-scores. In that way all the standardized variables have a mean of 0 and a standard deviation of 1.

The geographic setting

The populations studied here live in three neighboring villages in the Rhodopi lowlands, those of Aratos, Bragia and Anthohori (Map 1). The whole area is very interesting because of the cohabitation of several groups with discrete cultural and socio-economic characteristics.

Map 1. The geographic distribution of the studied populations.

Anthohori village is inhabited by Christians originating from the Eastern Thrace, nowadays the Turkish part of the geographic territory of Thrace. As a rural population, they were forced to settle there after the compulsory exchange of populations between Turkey and Greece, by the end of the Greek-Turkish war in Asia Minor and the sign of the Lausanne Treaty (see Clogg, 2002). Nowadays many of them have migrated to Athens, to other major Greek cities and also to Germany and several other European countries. Anthohori was recognized as an independent settlement in the Census of 1961. Before then it was considered to be part of the nearby village of Aratos.

Aratos is inhabited by a large group of Roma which is consisted of a Christian and a Muslim group. Along with the other Muslims of the area, the Muslim Roma of Aratos were considered as not exchangeable in the compulsory exchange of populations mentioned above. The Christian Roma are mainly refugees from eastern Thrace, which migrated to Greece at the same time as the population of Anthohori did and year by year settled at the edges of the village next by their Muslim counterparts. The demographic and genealogical structure of the Christian Roma has been published elsewhere (Zafeiris and Xirotiris, 2002), and data from this publication will be used here for comparative reasons. While the Muslim Roma of Aratos have preserved much of their traditional life, the Christian ones have undergone a significant socio-economic transition because of their great effort to integrate to the social and economic process of the area. Moreover, Muslim Roma are also found in the nearby Bragia Village. Unfortunately the population sizes of the Muslim Roma in both villages are quite small, so they will be grouped in order to form a larger unified group called Muslim Roma from now on.

The rest of the Muslim population of Aratos and Bragia is consisting of lowland and non exchangeable Muslims and also of mountainous Muslims which migrated there, called Pomaks. Some of the inhabitants are originating from Bulgaria, from where their ancestors left at the beginning of the 20th century. Mainly they are land workers, farmers, construction workers. Some of them are employed in the tertiary economic sector, while others have migrated mainly to Komotini and Germany. These populations will be called Muslims of Aratos and Muslims of Bragia from now on.

For comparative reasons two other population groups will be added in this paper. The first of them is the mountainous population of Pomaks. They live in 23 isolated villages north-east of Komotini, the capital of the Department of Rhodopi. The results of part of the demographic analysis of a previous work (Zafeiris, 2006) will be cited here grouped in two population groups, those of Organi and Kehros. Actually Pomaks is a Slavic speaking and ex-Christian population that was Islamized by the 17th century (Georgieva, 2001; Papachristodoulou, 1958). Even though both of them are Muslims the majority of Organi's people are Sunnites while numerous Bektashi live in Kehros. They have undergone a rapid demographic transition the last fifty years which is mainly connected with the gradual arsis of the geographic and cultural isolation of the area they live and their progressive integration to the market economy (Zafeiris, 2009).

Lastly, the Vlachs of Karitsa will be taken in consideration (Zafeiris and Xirotiris, 2007) in order to examine demographic similarities between Rhodopi and more remote areas. They are Christians and they live almost 320 km away from Komotini. They are an ex-mountainous population which settled in Pieria's lowlands by the ends of the 19th century. Mainly they are employed in the primary economic sector but also in the secondary and tertiary one.

Data and methods.

The civil register records of Aratos, Bragia and Anthohori villages- which on the past constituted the municipality of Aratos -were used for the construction of the paternal genealogical trees of all of the members of the populations, in order possible inconsistencies of the data to be indentified and family formation system to be examined (data collected refers to years up to 1994, corresponding to 1479 family registries and 5163 persons). Mean ages at marriage for both spouses, age difference of the spouses, mean age of mother at first child, marriage – first child chronological gap, mean age of mother at last child, children ever born per mother, proportion divorced and proportion widowed were directly calculated from the data. Also the reproductive span of the mothers was examined, calculated as the result (in years) of the subtraction of the birth date of the last child minus the birth date of the first child plus one year in order the whole childbearing span of women to be taken in consideration (Stevenson et al., 1989). For the post World War II period, all the calculations were based on the exact dates –if known - of the demographic events. Because these calculations are actually based on sample data, statistical non parametric tests were applied in order to test mean age differences between the different marriage cohorts.

However, while dates were quite accurate (day precision) in the post World War II period, in many cases in the pre war one, only the year of the event was known. In those cases the event was considered to have taken place exactly in the middle of the known year. Even more, a clear overestimation of the ages of the spouses is evident for the people married up to 1930 as it is extremely usual in Greece and it was confirmed during our field work in various populations. Because of the approximation of the ages of the spouses, all marriage cohorts before 1950 were unified in two broader study periods, that of 1900-1929 and 1930-1949. We have to note that this was a historically, politically, socially and economically diverse period and the "creation" of such big cohorts diminishes enough the

interpretation abilities of the findings. On the other hand it seems that there was no overestimation of the other variables that were measured, because of the accuracy of the dates for the most of the progenies of the couples married in those periods. Concluding, pre-World War II findings will be cited, but they will also be discussed as approximate measures where it is thought to be appropriate. Finally, cluster analysis of the data took place. The clustering method chosen here was that of Ward because it diminishes information loss in comparison with other methods of clustering (Euclidean distances used) and also gave the best results comparing with all the others that were tried. In cluster analysis proportions of windows were not taken in consideration because of the missing values found in some of the populations.

Results

According to the official data from Hellenic Statistical Authority[1], females' mean age at marriage in Greece decreased from 24.5 years in 1956 to 22.6 years in 1980 and increased, once again, to 24.9 years (24.4 for the first marriage) in 1992. Similar trends were observed for the male population of the country, where age at marriage remained well above the 27.5 years and reached the 30 years of age in 1999. However, the paradigm of Greek Thrace is indicative of the possible variability that can be observed throughout the country. While brides in Thrace are constantly getting married between the 22nd and the 23rd age of their age (1961-1991), grooms' mean age at marriage increased from 25.5 to 27.1 years in the same period, still remaining well below the national average (own calculations). This variability becomes even greater if the analysis focuses on small populations. The observed repertoire of marriage patterns of the populations studied here, despite the universal character of marriage in all of them, is indicative of the range of diversification of their economic, social and cultural characteristics (Table 1). This is in accordance with the findings in a series of other studies where it was shown that even if age at marriage hinges on economic variables (Wringley and Schofield, 1981), the distal effect of social and cultural parameters is of great importance too (Trumbach, 1978), especially in small anthropological populations where it may be more essential than that of the economic ones (Kertzer, 1995).

Age at marriage of the Christian population of Anthohori village is always higher in comparison to the other populations studied here (Table 1). The brides of Anthohori are getting married around the 22nd and 23rd year of their life for the most of the examined post World War II marriage cohorts. Even though an increasing trend of mean marriage age is observed, especially for the 1980-1989 cohort, the differences between the cohorts are not statistically significant. Grooms' age at marriage seems to increase through time and to converge gradually with the national levels, an obvious situation in the Vlachs of Karitsa village after 1970-1979; however the differences between the marriage cohorts are once again not statistically significant. Surely enough an obvious overestimation of the age at marriage is observed in the first cohort, not only for the population of Anthohori but also for the other ones mainly because of the lack of official birth certificates, considering that all of the people formed these cohorts were born in Ottoman's Empire's territory where a "western type" registration system was absent. This problem still persists in the next marriage cohort, but in a lesser magnitude. That's why age at marriages for the pre World War II period will not be discussed later.

If we assume that marriage signals the dawn of reproduction, Muslims come before Christians (Table 1). With a few minor exceptions, females' age at marriage tends to be 20-21 years, but it is worth to note that the lowest marriage ages are observed in Organi, less than 20 years but still very close to the other Muslim populations. Males are getting married later, when they are about 22-23 years old. A general trend of increase of mean age at marriage in the last marriage cohort for both sexes is evident for all the populations studied here, including the Roma ones, but the sample sizes are very small and also the differences are not always statistically significant. However, the Muslims Roma exhibit a quite different strategy concerning the onset of marriage life. Mean age at marriage for both spouses is the lowest observed in the sample. For women it is only 18 years or less, for the most of the studied cohorts. On the other hand, many of them are getting married before their 16th birthday (31.4%, comparing with 1.5% for Christians and 5.0% for the other Muslims). It seems that the practice of very early marriage is a common element of the Roma culture. In Agia Barbara, a city in Attica, the unions of this category constitute the 28.5% of the total number of marriages, in Kato Achaia, a village in Peloponnese, the 30.9% (Pavli and Sideri, 1990), and in the neighbor population of the Christian Roma the 21.6%. Similar patterns can be found all over the world, as for example in the Roma population of Terbisov (Czechoslovakia, 1950s), where girls entered marriage when they were 13-15 years old, while boys when they were 14-18 (Kaldova, 1991). Undoubtedly, such practices are based on strong cultural

[1] Available statistical data for Greece at www.statistics.gr and www.e-demography.gr

traditions concerning marriage and gender roles but their preservation in the modern era should be ascribed to the very low socio-economic status of the Roma populations.

Table 1: Mean Age at first marriage in the under study populations. First marriages.

	Anthohori (Christians)			**Aratos (Roma-Muslims)**			**Aratos (Muslims)**			**Bragia (Muslims)**		
Marriage	Mean	N	StD	Mean	N	StD	Mean	N	StD	Mean	N	StD
Cohort	**Females**											
1900-1929	*21.7*	*32*	*4.62*	*20.3*	*13*	*3.76*	*21.1*	*84*	*5.13*	*20.0*	*42*	*3.55*
1930-1949	*19.8*	*51*	*4.74*	*17.8*	*38*	*2.61*	*19.4*	*98*	*3.53*	*19.3*	*59*	*2.74*
1950-1959	21.8	35	2.93	17.9	39	3.29	20.2	89	3.36	20.1	48	3.87
1960-1969	23.0	60	3.36	17.8	63	3.28	21.1	91	3.81	21.2	88	3.57
1970-1979	22.9	54	5.96	18.0	75	3.32	20.8	112	3.16	22.1	71	4.67
1980-1989	24.5	40	5.80	17.4	104	3.51	20.2	100	3.54	20.6	37	3.32
>1990	22.6	6	2.17	18.6	28	4.15	21.2	25	2.99	21.0	13	7.13
	Males											
1900-1929	*27.2*	*29*	*6.60*	*27.1*	*14*	*8.08*	*28.6*	*79*	*6.30*	*25.7*	*42*	*6.32*
1930-1949	*25.3*	*41*	*6.61*	*21.6*	*32*	*5.27*	*24.5*	*88*	*4.7*	*23.0*	*58*	*3.30*
1950-1959	25.4	28	3.23	21.7	29	4.79	23.4	68	4.05	23.1	34	3.63
1960-1969	26.8	35	2.78	19.9	42	2.96	22.6	60	2.58	22.2	44	3.31
1970-1979	26.7	26	3.75	20.4	45	3.00	22.3	66	2.89	22.1	38	2.76
1980-1989	29.7	30	6.31	19.8	56	3.34	23.4	59	2.67	22.9	25	4.38
>1990	29.0	7	6.40	21.7	13	3.24	25.1	16	2.67	23.6	9	3.19
	Karitsa (Vlachs)			**Organi (Muslims-Pomaks)**			**Kehros (Muslims-Pomaks)**					
	Females									**Females**		
1930-1939	22.1	44	4.07							**Kruskal-Wallis test**		
1940-1949	22.1	45	3.36	19.0	110	2.59	17.6	14	2.44		x^2	p
1950-1959	22.8	61	3.31	20.5	360	2.75	20.0	59	2.95	Anthohori	5.53	0.237
1960-1969	22.6	116	3.49	19.7	281	2.34	20.9	122	2.49	Roma (Mus)	4.1	0.393
1970-1979	21.1	141	4.38	19.3	277	2.24	20.7	144	2.63	Bragia (Mus)	12.3	0.016
1980-1989	20.1	89	4.55	19.4	314	2.17	20.7	151	2.71	Aratos (Mus)	8.81	0.066
>1990	22.6	82	5.68	19.6	96	2.01	21.8	57	3.90	Post World War II cohorts		
	Males									**Males**		
1930-1939	26.9	44	4.54							**Kruskal-Wallis test**		
1940-1949	28.0	45	4.39	23.6	120	3.72	21.6	19	3.63		x^2	p
1950-1959	26.7	61	2.76	23.0	380	3.12	22.3	64	2.76	Anthohori	7.2	0.126
1960-1969	26.1	111	2.83	22.4	285	3.21	23.3	135	3.06	Roma (Mus)	6.9	0.139
1970-1979	25.0	136	2.49	22.2	282	2.90	22.6	157	3.44	Bragia (Mus)	3.1	0.539
1980-1989	26.0	85	3.03	21.7	322	3.00	22.6	169	3.15	Aratos (Mus)	14.0	0.007
>1990	27.7	78	4.15	22.1	104	2.24	24.4	61	3.68	Post World War II cohorts		
	Aratos (Roma-Muslims)											
	Total marriages			Official marriage before the birth of 1st child			Official marriage after the birth of 1st child					
	Females											
<1940	21.6	21										
1940-1959	20.0	33		18.6	20		24.2	9				
1960-1979	18.9	76		18.1	47		20.8	16				
1980-1994	19.7	62		18.0	35		21.3	6				
	Males											
<1940	31.0	21										
1940-1959	22.1	33		21.1	20		25.1	9				
1960-1979	21.7	64		20.9	47		25.2	13				
1980-1994	23.1	52		22.7	35		25.5	6				

The persistence of strong cultural traditions is obvious in Terbisov. As Kaldova notes (1991), "*religious wedding ceremony was, in some families, merely a formality. Valid was only their own*

marriage ritual that was based on the fact that the collective of the Gypsy community approved that two individuals live as a man and wife, even though both of them were rather young". In that case, someone participating in a stable and generally acceptable sexual union essentially would be considered as married by his counterparts, regardless if he had officially legalized his marriage according to the civil law of the country that he lives, where he would still considered being unmarried. This is a common finding of the demographic studies of Roma populations. In Andalusia for example, the non-legalized marriages constituted the majority of marital unions for the women born in the first two decades of the 20th century (Martin and Gamella, 2005). Despite the fact that this kind of unions diminished in the younger birth cohorts, the 20% of women born between 1960 and 1969 did not possess an official matrimonial contract. On the other hand, official marriage usually followed the birth of the first child, a practice that - even if it retreated gradually – may indicate that procreation triggered people to seek State's recognition for their marriage, which simply may suggest that there was a bureaucratic need of the official recognition of the progenies, as it was also found in the population of Christian Roma of Aratos (Zafeiris and Xirotiris, 2002). There, in most of the cases the official religious marriage signaled the beginning of partners' reproductive live. If the official marriage followed the birth of the children, those were considered to be acceptable according to the cultural norms. But even in that case, the legalization of the "customary marriage" was essential for the local people, because of the need of children's registration to Registrar's Office and their effort to integrate themselves to the social, economic and political life of Thrace. Then an essential question is raised. Can age at marriage generally be regarded as a proxy variable for age at first child, or as a starting point of observation of a woman's reproductive history?

This could be approximately acceptable in the cases that official marriage precedes the birth of the children. In the exact opposite situation, age at first child should be considered as a proxy variable of the age at marriage. Then, marriage itself and age at marriage as a starting point of observation of women's reproductive history or as a proximate variable of the observed levels of fertility, loses its strength. This is quite obvious in the Christian Roma of Aratos. Mean age of women at marriage remains almost stable and low – about 18 years – when marriage precedes the birth of children. It is all the time quite higher in the other cases (Table 1).

On the other hand, except of the Christian Roma of Aratos (18.1%), childbearing before marriage is an extremely rare practice in all of the under study populations (only 2 cases in the population of Anthohori and 3 in the population of Muslim Roma). But considering that parturition comes, on average, 266 days after conception (Jones, 1997), then in the 15.8% of the marriages of the Christian population the bride was pregnant during the ceremony. This is also quite common in the population of Muslim Roma (14.6%), but rare enough in the other Muslim populations (3.2%), mainly referring to some cases of emigrants to Germany and Holland. It is not known if the forthcoming marriage triggered the reproductive process or, on the contrary, if the pregnancy of the future wife triggered marriage, but it is rather obvious that the well spread notion of the avoidance of procreation outside marriage is evident, which, on its turn, is abutted on strong cultural and religious norms and beliefs. Religion plays an important role in the formation of social identity as it doesn't only have several moral rules in order reproductive behavior to be controlled but also possesses the mechanism of diffusion and consolidation of these rules (McQuillan, 2004). As a result religious identity impinges on demographic behavior (Lehrer, 2004). Both Christianity and Islam forbid premarital sex and, in any case, reproduction outside marriage; religious people should avoid both. But people's behavior is not always the result of the passive acceptance of cultural and social rules. On the contrary, people can act and their actions are the results of a dialectic relationship between the actors and their environment (Carter, 1995). In other words, a birth of a child must not only be understood within the environmental or socio-economic and cultural setting that took place but also in relation to the consequences of this birth.

With the exception of the Christian Roma, procreation before marriage was avoided those times, because an illegitimate child was not acceptable in both the Christians and Muslim populations and would have caused severe criticism and phenomena of social exclusion in the rural Rhodopi. Premarital sexual intercourses were also avoided in the Muslim population, but not in the Christian one, where various social and economic transformation processes caused the revision of the rules concerning chastity or even moderated religiosity. On the other hand Muslim Roma seem to have been integrated well enough into the cultural and religious system of Islam adopting major characteristics of their Muslim - but not Roma - counterparts through several cultural diffusion processes. At the same time they have abandoned some but not all the old habits and traditions. This is not a comment about their religiosity; rather it is a proposal that, as it is expected, the adoption of the Islamic religion caused several modifications in their original culture but it didn't exterminate it. That's why procreation before

marriage is avoided while pre-marital sex seems to be at least partly acceptable. These transformations are also evident in the population of the Christian Roma, where some of their major cultural characteristics are gradually abandoned in favor of their integration to the Christian majority of Thrace.

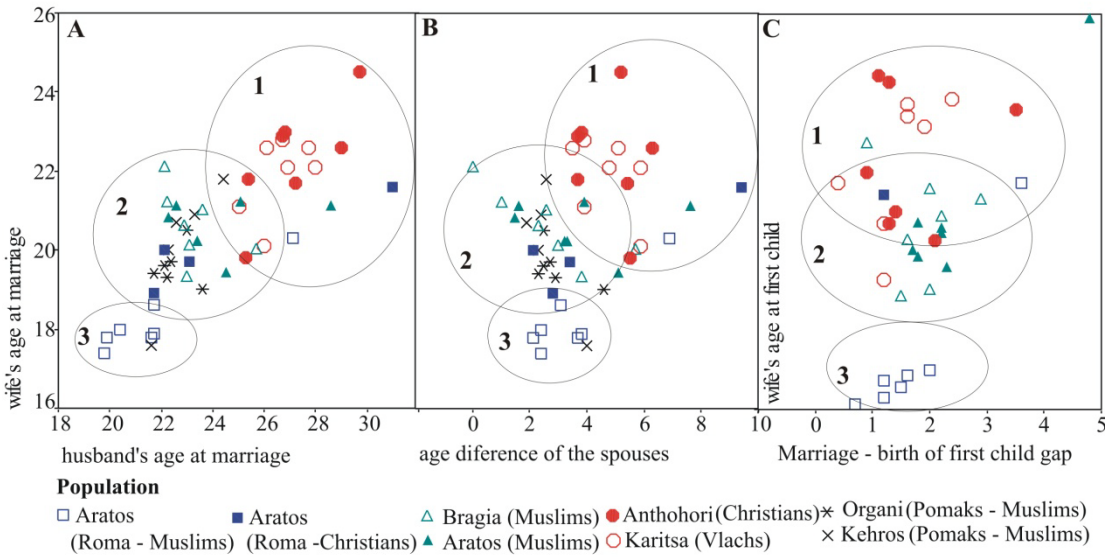

Figure 1: Age of the spouses at marriage, age difference of the spouses and age of mother at the birth of first child and chronological distance between this birth and marriage.

Concluding, despite the partial overlapping that is observed for a few marriage cohorts, age distributions at marriage of males and females clearly formulate three distinct groups (Figure 1, A). The most diverse of them is of the Roma (Figure 1, A, 3). The intermediate group consists of the Muslim populations (Figure 1, A, 2) and the third one of the Christians (Figure 1, A, 3). The same classification is observed concerning the age of the bride and her age difference with the groom (Figure 1, B), where a general tendency for greater differences is found in the Christian populations (2-4 years).

It is evident that because of the observed variability of the family formation processes, the onset of sexual intercourses and the timing of first birth in comparison to the marriage, the most accurate measure of the start point of woman's actual reproductive period is the mean age at first birth. Additionally, mean age of the mother at last child and reproductive span will provide an accurate measure for the endpoint and the duration of reproduction, i.e. they will provide a mechanistic model for the interpretation of the final outcome of the procreation, the number of children that a mother gives birth to.

The effects of socio-economic and cultural diversification on family formation processes are once again obvious comparing the mean age of mothers at the birth of first child and the chronological distance between this birth and the date of marriage, where the same major groups as before are formed (Figure 1, C, Table 2). The most diverse of them is of the Muslim Roma[2], where for the majority of the cohorts average age at first birth stands between 19 and 20 years, 1 to 2 years after marriage ceremony (Figure 1, C, 3). More discrete seems to be the last marriage cohort (1990-1994) concerning marriage-first birth gap but this must attributed to censoring effects, and the first one, where an overestimation of both variables is evident. Except of these two cohorts, the second group is formed by the Muslim populations of Aratos and Bragia (Figure 1, C, 2). The less diverse of them is that of the Aratos Muslims, where the mean age at first birth fluctuates around the 22 years and the gap marriage–first child around the 2. On the other hand, mean age at first birth fluctuates a lot - from 21 to 23 years - in the Bragia Muslims while the chronological gap is limited between 1.5 and 2.2 years.

The third group is formed by the two Christian populations (Figure 1, C, 1), and partly overlaps with the second one. In Anthohori, mean age at first child is as diverse as to be between 22 and 25 years, while marriage–first child gap is very close to 1 year in most of the cohorts. Karitsa falls in the same limits concerning mean age at first child but the chronological gap marriage-first child is somehow bigger.

[2] In the Christian Roma of Aratos mean age of mothers at first child is almost identical except from the pre-World War period where it was 22.8 years (Zafeiris and Xirotiris, 2002)

Table2: Chronological gap between marriage and birth of first Child. Mean age of mother at the birth of first child. First marriage of the mother.

Marriage Cohort	Chronological distance between marriage and birth of the first Child			Mean age of Mother at the birth of 1st child		
	Anthohori (Christians)					
	Mean	N	StD	Mean	N	StD
1900-1929	*3.5*	*28*	*4.04*	*24.3*	*30*	*5.09*
1930-1949	*2.1*	*42*	*1.75*	*22.0*	*43*	*5.03*
1950-1959	1.4	25	1.36	22.5	25	2.95
1960-1969	1.3	29	0.75	24.8	28	3.60
1970-1979	1.3	25	1.18	22.3	24	5.11
1980-1989	0.9	22	0.92	23.2	21	4.52
>1990	1.1	3	1.07	24.9	3	2.42
Kruskall Wallis (1950-1994)	x^2=17.396, p=0.001			x^2=8.255, p=0.041		
	Aratos (Roma-Muslims)					
1900-1929	*3.6*	*10*	*4.72*	*23.0*	*12*	*6.90*
1930-1949	*2.0*	*32*	*2.59*	*19.7*	*36*	*3.32*
1950-1959	1.2	31	1.05	19.5	31	3.31
1960-1969	1.5	41	1.46	19.4	41	3.22
1970-1979	1.2	42	2.14	19.2	39	2.73
1980-1989	1.6	54	1.44	19.6	54	4.18
>1990	0.7	14	0.46	19.1	14	3.93
Kruskall Wallis (1950-1994)	x^2=26.358, p=0.000			x^2=0.045, p=0.997		
	Aratos (Muslims)					
1900-1929	*4.8*	*73*	*5.18*	*25.9*	*77*	*7.01*
1930-1949	*2.3*	*84*	*1.79*	*21.5*	*86*	*3.46*
1950-1959	1.7	59	1.40	21.8	61	3.37
1960-1969	1.8	55	1.08	22.3	54	3.20
1970-1979	2.2	62	1.71	22.2	62	3.09
1980-1989	1.8	55	1.15	21.7	55	3.24
>1990	2.2	6	0.64	22.1	6	1.33
Kruskall Wallis (1950-1994)	x^2=74.429, p=0.000			x^2=2.327, p=0.507		
	Bragia (Muslims)					
1900-1929	*2.9*	*35*	*1.86*	*22.7*	*40*	*3.90*
1930-1949	*2.0*	*56*	*1.90*	*21.1*	*57*	*3.18*
1950-1959	1.5	32	1.11	21.0	31	2.70
1960-1969	2.2	41	1.53	22.4	41	2.82
1970-1979	2.0	32	1.67	22.9	31	2.85
1980-1989	1.6	22	0.81	22.0	22	3.74
>1990	0.9	3	0.22	23.7	3	4.19
Kruskall Wallis (1950-1994)	x^2=29.918, p=0.000			x^2=10.613, p=0.014		
	Karitsa (Vlachs)					
1930-1939	*1,9*	*34*	*3,27*	*24.5*	*74*	*4.57*
1940-1949	*1,7*	*31*	*2,01*	*24.0*	*61*	*3.96*
1950-1959	1,7	70	2,02	24.4	84	3.17
1960-1969	1,3	113	1,24	24.2	147	4.08
1970-1979	1,3	133	2,69	22.3	139	3.94
1980-1989	1,5	83	1,18	21.3	84	3.83
1990-1999	1,6	74	1,54	23.0	73	3.22

Table3: Mean age of mother at the birth of her last child, reproductive span and children ever born per marriage (Completed families). First marriage of the mother.

Marriage Cohort	Mean age of mother at the birth of her last child			Reproductive Span			Total Number of Births		
	Anthohori (Christians)								
	Mean	N	StD	Mean	N	StD	Mean	N	StD
1900-1929	*35.1*	*12*	*4.31*	*12.3*	*12*	*5.08*	*3.0*	*12*	*0.91*
1930-1949	*31.6*	*27*	*6.10*	*11.6*	*27*	*5.62*	*3.8*	*27*	*1.37*
1950-1959	26.4	22	3.90	5.2	22	2.45	2.3	22	0.63
1960-1969	30.9	24	4.50	6.5	24	3.85	2.1	24	0.65
Kruskall Wallis	x^2=24.071, p=0.000			x^2=28.546, p=0.000			x^2=33.259, p=0.000		
	Aratos (Roma-Muslims)								
1900-1929	*37.9*	*9*	*7.50*	*17.8*	*9*	*7.79*	*5.4*	*9*	*2.51*
1930-1949	*35.2*	*29*	*5.75*	*16.5*	*29*	*5.73*	*5.2*	*29*	*2.16*
1950-1959	26.8	21	4.19	8.4	21	4.32	3.0	21	1.02
1960-1969	26.7	16	4.51	7.7	16	4.87	2.7	16	1.01
Kruskall Wallis	x^2=33.544, p=0.000			x^2=32.955, p=0.000			x^2=28.596, p=0.000		
	Aratos (Muslims)								
1900-1929	*34.9*	*48*	*7.19*	*11.1*	*48*	*5.91*	*3.7*	*48*	*1.57*
1930-1949	*28.6*	*59*	*4.97*	*7.7*	*59*	*3.72*	*2.7*	*59*	*0.88*
1950-1959	27.3	52	4.82	6.4	52	3.80	2.6	52	1.19
1960-1969	27.2	45	4.22	6.0	45	3.36	2.0	45	0.69
Kruskall Wallis	x^2=39.913, p=0.000			x^2=30.694, p=0.000			x^2=45.725, p=0.000		
	Bragia (Muslims)								
1900-1929	*33.5*	*20*	*6.42*	*12.4*	*20*	*4.70*	*3.7*	*20*	*1.30*
1930-1949	*32.0*	*48*	*5.59*	*11.8*	*48*	*5.27*	*3.6*	*48*	*1.39*
1950-1959	28.2	28	4.57	8.0	28	3.84	2.4	28	0.74
1960-1969	28.1	33	4.43	6.2	33	4.07	2.2	33	1.36
Kruskall Wallis	x^2=21.284, p=0.000			x^2=36.928, p=0.000			x^2=47.278, p=0.000		
	Aratos (Roma-Christians)								
<1940	38.5	13		16.4	13		5.3	13	
1940-59	30.4	27		11.0	27		4.6	27	
1960-79	27.7	19		8.6	19		2.7	19	
	Karitsa (Vlachs)								
1930-1939	37.5	58	3.44	13.9	58	4.42	5.1	59	2.04
1940-1949	33.6	53	4.86	10.4	51	4.29	4.0	55	1.57
1950-1959	31.2	82	3.90	7.2	97	3.06	3.1	106	1.19
1960-1969	29.3	139	4.43	6.0	138	2.72	2.8	143	0.90
1970-1979	27.0	118	5.01	5.1	118	3.44	2.4	123	0.94
	Kehros (Muslims-Pomaks)								
1940-1949	33.2	84	6.04	11.8	63	5.90	4.2	87	1.20
1950-1959	32.6	105	5.49	11.2	103	5.40	4.4	110	1.92
1960-1969	30.0	113	1.08	8.4	114	4.00	3.5	114	1.53
1970-1979	30.2	21	2.69	5.8	21	2.90	2.7	21	1.10
	Organi (Muslims-Pomaks)								
1940-1949	36.7	91	4.88	14.5	107	5.60	4.7	111	1.74
1950-1959	34.3	211	5.82	12.8	214	5.40	4.7	215	1.99
1960-1969	31.3	169	5.31	10.6	167	4.90	4.2	170	1.91
1970-1979	29.7	8	3.48	7.2	8	4.20	3.5	8	1.60

Age at marriage correlates negatively and significantly with the marriage-first child chronological gap, in all of the populations even though this correlation is week (Pearson's correlation coefficient: Anthohori: -0.102, Muslim Roma:-0.122, Aratos Muslims: -0.054 and Bragia Muslims: -0.158) and implies that there is a minor trend of decrease of this gap when age at marriage increases and vice versa.

Nevertheless, it seems that an obvious reproductive strategy adopted in the Rhodopi lowlands is the avoidance of deliveries in very young ages, even though in the Muslim Roma population these are not

rare (25.1%, comparing with 5.9% for Anthohori and about 6.3% for the other Muslim populations). This practice has several adaptive advantages because it has been found elsewhere that the death probabilities of infants and small children (under five years) are higher when mother's age is less than 18 years comparing with those of the children of the same age born by older women (Feeney, 1980; Hobract et al., 1985). This, except of the well known agents that affect child mortality[3], must be further attributed to the biological and psychological immaturity of the mother and the need of development of the necessary skills for the nursing of the children before the onset of procreation (see Bean et al., 1992).

While the onset of reproduction can be estimated as the age of mother at her first child, the age of the mother at last child is the ending point of procreation. In all of the populations studied here a general trend of gradual decrease of the age of mother at last child is observed from the older to the younger cohorts (Table 3, only completed families were considered). In that course, reproductive span is shortened in Anthohori for about 6 years. However, there, mean age at last child is lower in the 1950-1959 cohort than it is in the next one, as is the case with the reproductive span. Considering that the mean range of the reproductive span was 5.2 years for the women of this cohort, the majority of them terminated procreation by the late 1950s or the middle of 1960s, at the time of the great migration crisis that afflicted Thrace. According to the official data from the National Statistical Service of Greece (nowadays Hellenic Statistical Authority), the population of Anthohori diminished for about 35% between the 1961 and 1971 (total population; 1961 census: 255; 1971 census: 167). Obviously enough this was an era of great uncertainty for the local people in their effort to seek an outlet from the extended economic slump and underdevelopment of Thrace. Some of them migrated to the capital of Greece (Athens) or to other major cities including the nearby Komotini, but the majority moved to Germany and other western countries. In some cases the whole family migrated, in others only the father, leaving his family back home; in other words the usual family formation process was greatly disturbed. The effects of migration are obvious in the next cohort too, where except of an observed increase in the mean age of marriage of the spouses (Table 1), mean age at first child also gained 2.5 years (Table 2) and mean age at last child exceeded 30 years accompanied with an enlargement of reproductive span and a minor decrease in the average number of children ever born (Table 3). In Karitsa a similar shortening of mean age at last birth and reproductive span was observed signaling the future completion of fertility transition (Zafeiris, 2009).

Mean age at last child is well below the age of menopause[4] which was recently estimated to be 51 years for the Greek women (Adamopoulos et al., 2002). On the other hand biological fertility declines with age (Silber, 1991), but in any case the mean age of mothers at last birth is very low in order to suspect that the observed fertility limitation may be ascribed to biological factors. Concluding, we may accurately suggest that the mechanism of marriage patterns' transformation mainly embraces the progressive decrease of age of mother at last child and the parallel decrease of reproductive span as a result of the temporal changes of the chronological point of implementation of the well known stopping practices of reproduction from the couples.

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[3] Like biological agents, genetic dysplasia, anthropometric characteristics, several ecological and environmental variables etc. (see Greenwood et al., 1987; Kirchengast, 1988; Cavalli-Sforza and Bodmer, 1971; Mosley and Chen, 1984).

[4] However, the distribution of the trait among different ethnotic and socio-economic groups of the country has not been studied adequately, but the differences observed here between these two variables are very big. These differences remain big even if we compare the mean age at last birth in the sample populations with the age of menopause of non European populations with very low socio-economic status. As Ginsberg (1991) notes, historical evidence suggests that 2000 years ago most women entered menopause in their early 40s, while medieval writers gave the 50s as the age when menses ceased. In Western industrialized countries median age is around 50 years, while the menopause seems to occur earlier in non European women. In some populations the mean age at menopause can be considerably lower, as it was found in Hutterites where the 50% of women were not fertile by the age of 40 (see Eaton and Mayer, 1953). In the Yoruba of Nigeria the median age was estimated to 48 years (Okonofua et al., 1989) and in South Africa the mean age was 49.5 rural areas and 48.9 in the urban ones (Walker et al., 1984), while in a sample of published values of the age at menopause the mean age ranged from 49 to 51.44 years (Pavelka and Fedigan, 1991). Nevertheless, median age at menopause can be even lower as it was found in New Guinea where it was estimated to be 43.6 years for the poorly nourished women and 47.3 for the better nourished (Scragg, 1973; cit. Walker et al., 1984).

Surely enough, the demographic history of Thrace during the 18th century is unknown and an estimation of the chronological onset and the magnitude of such practices is impossible, but the analogies in the mechanism of marriage patterns' transformation among the studied populations are remarkable, leading all of them to a reduced number of progenies, i.e. to the gradual completion of fertility transition.

It seems that the greater differences between them are concentrated on the onset time and pace of transition, and not on the transition itself, which is evident. Irrespective of their religious, cultural and socio-economic background the main common element of this transition is the gradual and volunteer constrain of the upper age limit of reproduction and the shortening of reproductive gap.

The Christian populations of the sample are the pioneers of this process, followed by the Muslim population of Aratos, where a sharp and difficult to interpret decrease in the reproductive span and the mean age at last child is observed in the 1930-1949 marriage period, trend that will prevails in the next marriage cohorts too. However, as it is noted elsewhere in this paper, the widening of marriage cohorts diminishes the interpretation abilities because it sums quite diverse historical periods. This is the case of the Muslims of Aratos.

The reproductive span shortening and the decrease of the mean age at last child were first occurred in the 1920s, after the integration of Thrace into Greece and mostly after the end of Greek-Turkish war in Asia Minor. It is difficult to know in what way these historical circumstances and geopolitical changes were particularized in such a small population, like this of the Muslims of Aratos, but it is rather sure that the fluidity of situation nursed feelings of insecurity[5] in the newly shaped political and socio-economic environment of Thrace, in which not only the Muslims but all the inhabitants of the area, migrants and natives, should adapt.

But if the Muslims of Aratos were strongly influenced by the historical circumstances why this isn't obvious in the neighbor population of Bragia? Probably, additional agents acted in order this situation to be shaped. For example, it could be appointed to the effects of changes in the local micro-economy structure, because of the arrival of the contiguous land working Christian population from eastern Thrace, or to other reasons, like political conflicts etc.

Whether or not, temporal trends of mean age at last child and reproductive span in the nearby Muslim population of Bragia correspond very well to those of the Christians of Anthohori in the older marriage cohorts while more differences are observed in the younger ones. Pomaks follow up but with a significant temporal delay which resulted in an elevated average number of children ever born in comparison to the other populations. This must be attributed to the geographic, economic and cultural isolation of Rhodopi Mountain. On the other hand, the two Roma populations follow the same general trend of the other lowland populations, but in comparison to them the mean age of the mothers at last child and the reproductive span are always higher.

At the end, all of the populations exhibit a significant decrease in the number of children ever born. It seems that despite the religious and cultural norms that prohibit any family limitation (for Muslims: see Hasna, 2003), the last is evident. Surely enough, the number of the progenies is the result of the influence of the inherited norms, social structures and institutions on reproductive behavior. All of them imply a great number of children per mother, but at the plains of Rhodopi their effects have been moderated or even diminished under the agent of other parameters, like the socio-economic situation, the political economy of the area and also because of the existence of several cultural diffusion processes which changed radically the concept of the family and the value of the children. Hasan M. who lives at the roots of Rhodopi Mountain gives a thorough description (1998) of the social and economic transformations that took place in the Muslim population of Rhodopi: *"We used to give birth to a lot of children in the past. Nowadays only to two or even three if you have enough money. Otherwise you cannot maintain the family…"*.

These socio-economic transformations are responsible for the gradual convergence of the sample populations concerning the average number of children ever born. In that way, starting from different levels at the beginning of the 20th century by the 1960s all of the sample populations from Rhodopi

[5] In confirmation, we have to notice that 1920s was the time of a huge compulsory population exchange between Greece and Turkey, as it was described in the introductory session of this paper. Muslim people who were addressed to stay in Greece should posses a special certificate as non-exchangeable, known as "etabli", an official bureaucratic process that was finalized later, in the middle of the 1930s.

lowlands, with the exception of the Roma, were very close to 2 children per marriage. Karitsa was at 2.4 and the Roma at 2.7. Nevertheless it was found in another Roma village (Ifaistos, a pilot study of fertility with the aid of questionnaires; Zafeiris et al., unpublished), that the ideal number of children was 3 per mother. Additionally, all the women (N=26) aged more than 40 years on the day of survey had an average of 4 pregnancies and 3.5 deliveries, which means that 0.5 children per woman were "lost" because of induced or not abortions. Considering that both the Roma of Aratos and the Roma of Ifaistos share the same socio-cultural and economic environment we may suggest that it is quite possible to find similar circumstances in the Muslim Roma of Aratos, which means that abortion should have played an important role in family limitation in this village too.

On the other hand, almost all of the questioned women of Ifaistos aged under 40 years on the day of survey (more than 95%, N=64) had practiced contraception as also did the older ones at about 80%. Such practices are also known from the Pomaks, applied mainly after the birth of first child (Zafeiris, 2006), and are indicative of the false assumption that "traditional" populations do not practice contraception (see also Skiner, 1997). Pomaks are the last that would undergo fertility transition as it is also evident from the temporal trends of Total Fertility Rates (TFRs) which will diminish from 4.7 children per woman in Organi and 4.6 children in Kehros in 1950-1954 to 1.8 children in 1990-1994 (Zafeiris, 2009). This rapid transition is connected with the gradual arsis of geographic isolation, the diffusion of new cultural characteristics and more important with their gradual integration in the market economy with the abandonment of their traditional preindustrial economy.

Table4: Marriage dissolution in the sample populations

Marriage Cohort	N	Divorce	Death		N	Divorce	Death	
			Wife	Husband			Wife	Husband
	Anthohori (Christians)				**Aratos (Roma-Muslims)**			
1900-1929	25	0.0	36.0	16.0	12	8.3	8.3	8.3
1930-1949	42	2.4	14.3	19.0	34	2.9	5.9	2.9
1950-1959	28	0.0	0.0	7.1	32	15.6	6.3	6.3
1960-1969	32	0.0	3.1	3.1	39	25.6	2.6	10.3
1970-1979	26	3.8	0.0	3.8	45	13.3	0.0	2.2
1980-1989	23	0.0	0.0	0.0	59	20.3	0.0	0.0
>1990	3	0.0	0.0	0.0	13	7.7	0.0	0.0
	Aratos (Muslims)				**Bragia (Muslims)**			
1900-1929	63	1.6	11.1	9.5	39	0.0	23.1	17.9
1930-1949	85	0.0	15.3	11.8	58	3.4	3.4	6.9
1950-1959	72	5.6	4.2	4.2	37	0.0	5.4	0.0
1960-1969	56	7.1	0.0	8.9	46	4.3	0.0	2.2
1970-1979	68	7.4	1.5	4.4	36	8.3	0.0	0.0
1980-1989	59	5.1	0.0	1.7	23	0.0	0.0	0.0
>1990	12	0.0	0.0	0.0	6	0.0	0.0	0.0
	Kehros (Pomaks-Muslims)				**Organi (Pomaks-Muslims)**			
1940-1949	130	1.5			194	1		
1950-1959	144	2.1			332	8.1		
1960-1969	150	2.7			274	6.2		
1970-1979	168	0.6			279	2.9		
1980-1989	175	2.3			334	1.5		
1990-1994	66	3			113	0.9		
	Karitsa (Vlachs)							
1930-1939	91	0.0	11.0	11.0				
1940-1949	80	0.0	1.3	12.5				
1950-1959	117	0.0	4.3	2.6				
1960-1969	156	0.6	1.9	3.2				
1970-1979	150	1.3	0.7	6.0				
1980-1989	93	2.2	0.0	0.0				

However, the family formation process is disturbed by two other major forces which act on the marriage itself, i.e. mortality and divorces (Table 4). Divorce is evident in all of the populations, but in

different relative frequencies. It seems to be less important in the Christian ones, where strong cultural agents, like gender roles etc., used to act in favor of the stability of marriage unions. As an old lady from Karitsa stated (2004) *"in older times it was shameful to get a divorce. It was an insult to the parents and the couple itself…"*. The most important influence of divorcing is found in the Roma populations, where more liberal ideas about marriage, family and sexuality have preserved despite the adoption of the more "rigid" Muslim tradition. Divorce is found in the Muslim populations of the sample too, but there may happen mainly because of the disability of the bride to conceive; i.e. because of the strong desire of husbands to have progenies, which correspond to the majority of divorce cases. In these cases man and wife are getting married once again with other mates. Similar cases are observed in the Roma population but in a lesser magnitude.

Lastly, mortality has also played an essential role in marriage dissolution (Table 4). Characteristically enough, more than a half of the marriages of the population of Anthohori in the period 1900-1929 have been dissolute because of the death of one of the spouses, comparing with the 33.3% calculated for 1930-1949. The majority of the marriages of the first period took place in Eastern Thrace, before the forced migration of the population to Greece. In the second period people had established themselves in the new homeland, but it seems that at the first years of their placement there, they were not lacking of great problems. Actually, the afflictions of this journey, the very low socio-economic status - at least in the first half of the 20th century - and the low levels of provision of Health System's benefits are recorded. Similar observations can be made for all the other populations, but the mortality effect on marriage diminishes through time, which mainly indicates the progressive improvement of life standards. Additionally, we have to note that divorced or widowers were married again with a greater magnitude in the Muslim and Roma populations and in a lesser in the Christian ones, but in this case sample numbers are very small in order to have more the less accurate calculations.

Conclusions

Significant changes were observed in the demographic behavior and especially the marriage patterns of the populations of the area, representing the under gone socio-economic and political transformations. The most important of them was the shortening of reproductive span and the diminishing of mean age of the mothers at marriage which progressively resulted in the reduced number of the progenies.

The under study populations have kept a dynamic identity in their demographic profile, responding every time to a variety of factors which affect day-to-day life (Figure 1). By the 1900-1929 the most diverse population was of the Roma Muslims of Aratos, keeping most of its cultural characteristics, fact that mainly resulted in the high number of progenies per mother. The other tree populations, the Mulsims of Bragia and Aratos and that of Anthohori are clustering together. Anthohori and Bragia had the closest relationship despite their cultural and religious differences. The next period (1930-1949) clearly three groups of populations are formed, corresponding mainly to the spatial localization of the populations. The most diverse of them consists of the population Karitsa, where the cohorts of 1930-1939 and 1940-1949 were taken in consideration separately. In the Department of Rhodopi, as before, Muslims of Bragia and Christians of Anthohori show great similarities in their demographic behavior. However, the Muslims of Aratos are more diverse and even more diverse are the Muslims Roma which exhibit more similarities with the mountainous Pomaks, which, on their turn, are clustering together in a very close related group.

By 1950-1959, because of the transformations of the marriage patterns observed in the Roma population, this is now classified with the more homogeneous group of the Muslims of Bragia and Aratos. Then concerning the demographic characteristics, a clear distinction prevails between them and the Christian populations of Anthohori and Karitsa Christians, which on their turn have differentiated well enough their demographic behavior in order to constitute another homogenous group. Both groups are distantly connected with the homogeneous but distant group of the mountainous Pomaks.

It seems that gradually two distinct demographic regimes can be isolated in the sample populations. The first one is observed at the Christian populations which form a rather distal and isolated group in the marriage cohort of 1960-1969. The second consists of the Muslim populations of the sample and includes the more distant in the previous cohorts Pomaks. However, it's still a quite diverse one. Muslims of Bragia and Aratos are closely related, and on their turn they have more similarities with their Roma counterparts than with the more diverged Pomaks. Unfortunately, because of the limited samples nothing can be said for the oncoming marriage cohorts.

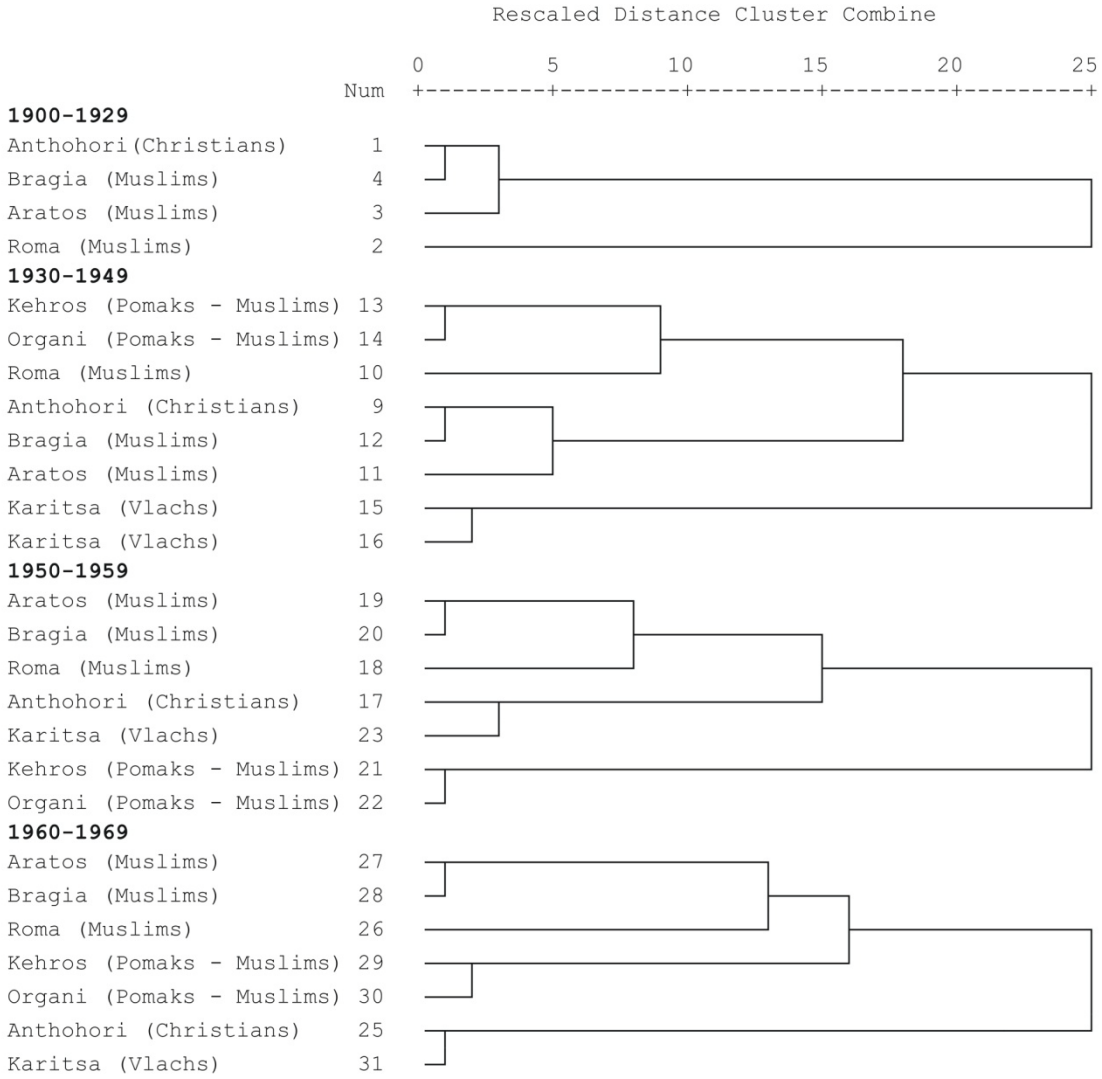

Figure 2. Cluster analysis of the sample Populations. Christian Roma of Aratos were omitted from the analysis because of the missing values in the data set.

The case of the sample of populations from Rhodopi revealed that the spatiality of the demographic characteristics mainly represents the effects of the action of the political, historical cultural, religious and socio-economic characteristics and transformations of the populations examined in the data set. However, it is not an exaggeration to say that in any data set, the diversity of these characteristics could be big enough even to distort the demographic profile of the examined geographical region, if these characteristics are not taken in consideration during the designing of the research project, the analysis of the data and interpretation of the results. That means that small scale research should be expanded because of its ability to detect and localize the mechanisms of demographic change.

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