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Inbreeding and age at first marriage in rural communities of center of Portugal*

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RESUMO

O presente estudo biodemográfico foi realizado na Região Centro de Portugal, num conjunto de 6 concelhos, correspondendo a uma amostragem de 37 paróquias consideradas tradicionalmente rurais. O número total de registos de primeiros casamentos foi de 9124, abrangendo um período de trinta anos (1881-1910).

As variáveis analisadas foram o coeficiente de consanguinidade aparente e a idade ao primeiro casamento. Consideraram-se 4 grupos socio-profissionais, tendo em conta, apenas, a profissão do marido.

Efectuaram-se análises de variância inter- e intra-populações e entre diferentes grupos socio-profissionais.

Palavras-chave: Consanguinidade; Idade ao primeiro casamento; Biodemografia; Portugal.

ABSTRACT

This biodemographic study was done in Center Region of Portugal, on an assemblage of 6 municipalities, which correspond to 37 parishes traditionaly rural, from which were taken 9124 first marriages registers, in a 30 years period (1881-1910).

Inbreeding coefficient as well as age at first marriage, were analysed. Four social groups were created taking into account the husbands' job.

A variance analyses was done among and within populations and among different socio-professional groups.

Key-words: Inbreeding; Age at first mariage; Biodemography; Portugal.

INTRODUCTION

Biodemographic structure of human populations is particulary complex because there are several factors contributing to it, namely economic and social ones. The age at first marriage and inbreeding are two biodemographic variables which reflect that complexity.

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In rural portuguese communities, those variables have been decreasing since the end of the last century until nowadays. This decrease is mainly due to the evolution of the social and economic way of life of those populations. However, population heterogeneity is not only due to time factors. In a given period of time, population structure is never homogeneous: there are always different subdivisions inside it.

Geographic factors as well as social and economic ones, are responsable for some of those subdivisions.

In Portugal, at least the age at first marriage shows discontinuities from the south to the north: this variable increases as we move to the north (ABADE & BICKER, 1984; ROWLAND, 1984). Concerning other factors, mainly in the pre-industrial populations, social stratification is one of the most important elements contributing to the global structure of the population (ABELSON, 1978).

The aim of this work is to analyse the geographic discontinuities as well as to evaluate the influence of the social-professional *status* on inbreeding coefficient and on the age at first marriage, in an assemblage of 37 rural portuguese communities belonging to 6 municipalities. All the municipalities are in the center region of Portugal, which means that are located between Douro and Tejo rivers (Fig. 1).

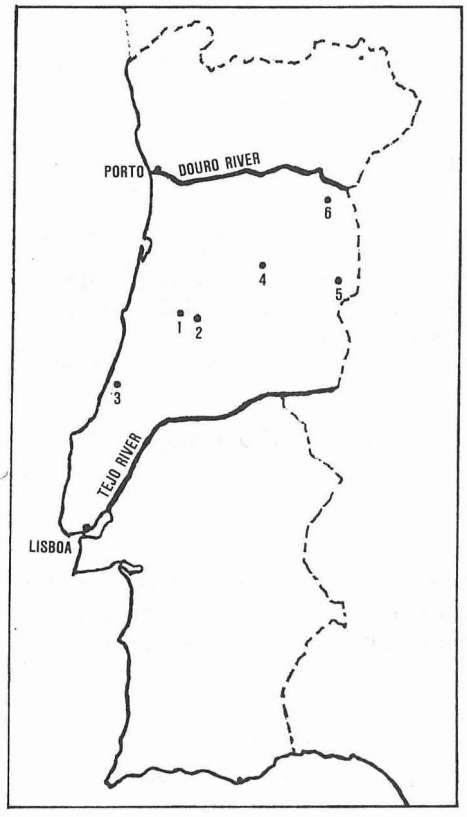

FIG. 1 — Portugal map: central region

All the choosen populations represent distinct geographic situations, the great majority are populations from the interior, with exception of those from Marinha Grande, at seaside. These populations have agriculture as a subsistence way of life. Tábua, Gouveia, Sabugal e Vila Nova de Foz Côa are also mountain populations; however Sabugal, as it is near the frontier, has some particularly kind of business derived from its geographic situation.

The peculiar situations of these populations do not disturb their general characteristic which is being rural communities (RIBEIRO, 1940).

Demographically, the majority of those populations had lived, until a recent time, under the influence of the old regime, with high natality and infant mortality rates, and also with high migration values, not only to the urban centers (mainly to Lisbon) as also to abroad. To the majority of those populations the emigration was a changing factor: the continuous population increase was not accompanied by the increase of the food. In fact the reduce number of fields and the mountain sources were not enough. Although the migrational phenomena was very intense in some populations, it did not break their structure; this normally happens when the migration reach a certain limiar in the value of the active population, decreasing the resident population to an assemblage of old people and children (RODRIGUES DE AREIA, 1983). However, some populations from the municipalities of Sabugal and Vila Nova de Foz Côa nearly reached that limiar.

MATERIAL AND METHODS

Our data consist of 9124 marriages registers (from 1881 to 1910) in reference to several parishes (Table 1) of the following municipalities:

— Coimbra;
— Tábua;
— Marinha Grande;
— Gouveia;
— Sabugal;
— Vila Nova de Foz Côa.

From each register were taken some parameters. To our work we have considered bride and groom age, civil *status,* groom profession and the degree of consanguinity.

Taking into account the groom profession, we have created 4 socio-professional groups:

— Land Owners;
— Rural Workers;
— Artificers;
— Others.

We have applied a variance analysis to diferent levels:

I — ANOVA among parishes, within municipalities (socio-professional groups all together)
II — ANOVA among socio-professional groups, within parishes
III — ANOVA among socio-professional groups, within municipalities
IV — ANOVA among municipalities (socio-professional groups all together)
V — ANOVA among socio-professional groups, total population

RESULTS AND DISCUSSION

1. *Consanguinity*

1.1 *Socio-professional groups all together*

F-values obtained to the 37 populations studies, in a total of 9124 marriages, are between the maximum score of 0.02455 (Moita) and the minimum one of 0.00091 (Marinha Grande). If we consider this later score as normal, even when compared with other international populations (FREIRE-MAIA, 1957) the former is very high, not only in absolute terms but also in relative ones (even when compared with other isolated populations). The populations from Covelo, Penalobo e Sinde have also high consanguinity values respectively, 0.01342, 0.01127 and 0.01103. With lower F values we have, beside the already mentioned (Marinha Grande) others like Almendra (0.00142), Folgosinho (0.00150) and S. João da Boavista (0.00181).

Considering consanguinity values in the global population grouped by municipalities, we verify that the scores vary between 0.00650 for Sabugal and 0.00170 for Gouveia (Table 2).

Taking into account that they are mountain populations, those values, in a municipality level, reflect a consanguinity mean relatively low. The degree of isolation and his consequent repercussion on consanguinity, is more evident in the populations when considered one by one.

When the different municipalities means are compared, the variance analysis among populations reveals statistically significant scores. This fact could mean a geographic differentiation in the consanguinity distribution (ANOVA IV — Table 5).

In the same municipality, parishes comparison reveals significant differences at Tabua, Marinha Grande and Vila Nova de Foz Côa, and not significant scores ($P > 0.05$) at Coimbra, Sabugal and Gouveia municipalities (ANOVA I — Table 5).

1.2 *By socio-professional groups*

When analysing the populations in a municipal level, the highest values belong to the Land Owners socio-professional group. However, Gouveia

municipality is an exception because there, the highest consanguinity score is obtained with the Artificiers'group (Table 3). Still in a municipal point of view, when comparing the four socio-professional group means, the variance analysis reveals significant statistical differences at Coimbra, Tábua, Marinha Grande and Sabugal municipalities. When considering the population as a all (grouping all the municipalities) the results are still significant (ANOVA III e V — Table 5).

When applying variance analysis to each parish (ANOVA II — Table 4), the results obtained are very heterogeneous, which, in our opinion, is not very significant, because the data size of some populations is very small.

Anyway, it is interesting to find that in some parishes and in some socio-professional groups, there are consanguinity scores higher than usual as, for instance, at Covelo (Land Owners — 0.02282), Moita (Rural Workers — 0.04634) and Sinde (Artificers — 0.02409).

2. *Age at first marriage*

2.1 *Socio-professional groups all together*

Concerning the groom age, which in some cases is about 30 years old, the population analysis, reveals relatively high mean values for age at first marriage (Cerdeira — 30.55; Penalobo — 29.82, among others). Highest female scores, are reached at Meda de Mouros (26.64), Penalobo (26.21) and Sinde (26.05).

Considering age at first marriage by municipalities, we find, that male means are between 28.00 (Tábua) and 24.52 (Vila Nova de Foz Côa), while the female mean values maximum and minimum are reached at Coimbra and Vila Nova de Foz Côa, respectively (Table 2).

The inter-populations variance analysis (ANOVA I e IV — Table 5) reveals significant statistical differences for the two sexes, when the comparision is among the municipalities; but gives different significant results, when the comparision is among the different parishes of each municipality.

The means of the different municipalities are shown in the Table 2.

2.2 *By socio-professional groups*

Concerning age at first marriage, the highest values are reached by the Land Owners social group, with the highest scores for all municipalities with exception of Sabugal to women age. On the other hand, Artificers' group, is the one with the lowest ages, with exception of Coimbra to men age (Table 3).

Variance analysis applied to all population as well as to each municipality, gives significant results, with exception of Gouveia municipality on concerning woman age (ANOVA V e III — Table 5).

The variance analysis applied to each parish, gives heterogeneous results, which is probably due to the reasons already mentioned presenting the consanguinity results (ANOVA II — Table 4).

TABLE 1. *Enumerative of the 37 parishes analysed, numerical municipal proportion and total of marriage registers (both, men and women single)*

MUNICIPALITY	PARISH DATA / ALL PARISHES	PARISH	MARRIAGE REGISTERS
Coimbra	2/31	Almalaguês, Ceira	923
Tábua	12/15	Candosa, Carapinha, Covas, Covelo, Espariz, Meda de Mouros, Mouronho, Pinheiro de Coja, Póvoa de Midões, S. João de Boavista, Sinde, Vila Nova de Oliveirinha	1900
Marinha Grande	2/2	Marinha Grande, Vieira de Leiria	2065
Gouveia	2/22	Aldeias, Folgosinho	399
Sabugal	16/30	Aldeia da Ribeira, Aldeia de Santo António, Badamalos, Bendada, Casteleiro, Cerdeira, Lomba, Malcata, Moita, Quadrazais, Quintas de S. Bartolomeu, Penalobo, Pousafoles do Bispo, Sabugal, Soito, Sortelha	2741
Vila Nova de Foz Côa	3/17	Almendra, Castelo Melhor, Vila Nova de Foz Côa	1096

TABLE 2. *Bride and groom mean values ages and consanguinity coefficient in the different municipalities, considering socio-professional groups all together*

MUNICIPALITY	N	CONSORT AGE		F
		♂	♀	
Coimbra	923	27.08	25.41	.0040
Tábua	1900	28.00	25.37	.0058
Marinha Grande	2065	25.21	24.14	.0018
Gouveia	399	26.72	23.36	.0017
Sabugal	2741	26.74	23.99	.0065
V. N. Foz Côa	1096	24.52	22.00	.0028

TABLE 3. *Mean scores to groom and bride ages and consanguinity coefficient in the different municipalities by socio-professional groups*

MUNICIPALITY	LAND OWNERS			RURAL WORKERS			ARTIFICIERS		
	$\bar{X}_1$	$\bar{X}_2$	F	$\bar{X}_1$	$\bar{X}_2$	F	$\bar{X}_1$	$\bar{X}_2$	F
Coimbra	33.86	28.08	.0086	26.48	25.28	.0040	27.02	25.03	.0026
Tábua	31.28	25.80	.0086	27.60	25.47	.0052	26.60	24.42	.0063
Marinha Grande	29.29	25.10	.0039	26.13	23.98	.0009	23.76	22.56	.0013
Gouveia	29.07	23.95	.0002	26.48	23.25	.0016	25.29	22.67	.0018
Sabugal	27.05	23.87	.0090	26.66	24.24	.0046	25.80	24.10	.0034
V. N. Foz Côa	25.85	22.83	.0032	24.33	21.86	.0018	23.75	21.46	.0026

$\bar{X}_1$ = mean groom age; $\bar{X}_2$ = mean bride age.

TABLE 4. *Variance analysis significances between socio-professional groups, in each of the studied parishes (ANOVA II), to mean ages at first marriage (bride and groom) and consanguinity mean values*

MUNICIPALITY	PARISH	CONSORT AGE		F
		♂	♀	
Coimbra	Almalaguês	s	ns	s
	Ceira	s	s	ns
Tábua	Boavista	s	ns	ns
	Candosa	s	ns	s≈
	Covas	s	ns	ns
	Covelo	s	ns	ns
	Espariz	s	s	ns
	Meda de Mouros	s	ns	ns
	Mouronho	s≈	ns	ns
	Pinheiro de Coja	s	ns	s
Marinha Grande	Marinha Grande	s	s	ns
	Vieira de Leiria	s	s	ns
Gouveia	Aldeias	s	s	ns
	Folgosinho	s	ns	ns
Sabugal	Aldeia de Ribeira	ns	ns	s
	Malcata	ns	s≈	ns
	Pousafoles do Bispo	ns	s	s≈
	Quadrazais	s	s	ns
	Sabugal	ns	s	s
	Soito	ns	s	ns
V. N. Foz Côa	Almendra	s	ns	s
	Castelo Melhor	s	s	ns
	V. N. Foz Côa	s	ns	s

TABLE 5. *Variance analysis significances (ANOVA I, III, IV e V) to the mean ages at first marriage (groom and bride) and consanguinity mean values*

ANOVA	POPULATION	CONSORT AGE		F
		♂	♀	
I	Coimbra	s	s	s
Inter-Parishes	Tábua	s	ns	s
Intra-Municipality	Marinha Grande	ns	ns	s
	Gouveia	ns	ns	ns
	Sabugal	s	s	ns
	V. N. Foz Côa	s	ns	s
III	Coimbra	s	s	s
Inter-Professions	Tábua	s	s	s
Intra-Municipality	Marinha Grande	s	s	s
	Gouveia	s	ns	ns
	Sabugal	s	s	s
	V. N. Foz Côa	s	s	ns
IV Inter-Municipalities	All	s	s	s
V Inter-Professions	All	s	s	s

Considering men age, again in some parishes and mainly at the Land Owers socio-professional group, there are mean values higher than usual, mainly at Coimbra and Tábua: 37.93 (Ceira), 35.75 (S. João da Boavista), 35.23 (Espariz) and 34.57 (Meda de Mouros). To all the other socio-professional groups, the highest male age is 30.73 at Rural Workers' group of Cerdeira.

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