

Surnames, Inbreeding Coefficients and Population Structure of Costa Rica

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Running title: Surnames in Costa Rica

Table S1 The fifty most frequent surnames in Costa Rica. Electors in the 2012 Elections.

RODRIGUEZ	65,508
VARGAS	56,567
JIMENEZ	55,654
MORA	54,127
ROJAS	48,964
GONZALEZ	45,858
SANCHEZ	40,729
RAMIREZ	40,470
HERNANDEZ	40,160
CASTRO	31,360
ARAYA	30,194
LOPEZ	29,850
SOLANO	29,477
ALVARADO	28,127
CHAVES	27,822
QUESADA	27,392
CAMPOS	27,277
GOMEZ	26,900
PEREZ	26,856
MORALES	26,663
ARIAS	26,502
ZUÑIGA	25,586
QUIROS	25,530
FERNANDEZ	25,322
SALAZAR	22,830
BRENES	22,701
VILLALOBOS	22,560
GUTIERREZ	21,769
GARCIA	21,200
ALFARO	21,082
CALDERON	20,659
VALVERDE	20,555
VEGA	20,537
AGUILAR	20,381
CHAVARRIA	19,934
ALVAREZ	19,005
CASTILLO	18,898
SALAS	18,466
MURILLO	18,105
SOLIS	18,037
CHACON	17,995
SOTO	17,936
ESPINOZA	17,886
CORDERO	17,688
MONGE	17,603
MARTINEZ	17,465
MENDEZ	17,256
HERRERA	17,229
MONTERO	16,823
BARRANTES	16,348

Table S2 Distribution of isonymy parameters in 81 cantons of Costa Rica: ID, Identification; N, number of individuals; Na, number of paternal surnames; I, Random Isonymy; α , as effective surname number; Fst, coefficient of random consanguinity.

Cantons	Provinces	ID	N	Na	I	α	Fst
San José (Central)	San José	SJ 1	223,719	5,964	0.0057	175.7	0.00144
Escazú	San José	SJ 2	40,764	2,566	0.0072	137.9	0.00184
Desamparados	San José	SJ 3	145,416	2,681	0.0071	140.8	0.00177
Puriscal	San José	SJ 4	24,786	506	0.0154	64.2	0.00373
Tarrazú	San José	SJ 5	10,689	321	0.0181	54.6	0.00448
Aserri	San José	SJ 6	37,976	930	0.0115	86.0	0.00284
Mora	San José	SJ 7	17,680	770	0.0110	90.5	0.00273
Goicoechea	San José	SJ 8	85,476	2,686	0.0068	147.2	0.00170
Santa Ana	San José	SJ 9	28,400	1,629	0.0082	122.0	0.00207
Alajuelita	San José	SJ10	45,363	1,283	0.0074	135.4	0.00182
Vásquez de Coronado	San José	SJ11	46,430	1,617	0.0087	114.1	0.00220
Acosta	San José	SJ12	14,468	299	0.0237	41.3	0.00570
Tibás	San José	SJ13	54,670	2,298	0.0066	151.2	0.00166
Moravia	San José	SJ14	40,447	2,126	0.0071	140.4	0.00177
Montes de Oca	San José	SJ15	40,775	2,639	0.0058	172.4	0.00145
Turrubares	San José	SJ16	4,192	272	0.0165	60.5	0.00392
Dota	San José	SJ17	4,808	248	0.0164	60.6	0.00406
Curridabat	San José	SJ18	44,388	2,388	0.0059	169.0	0.00148
Pérez Zeledón	San José	SJ19	99,330	1,017	0.0101	98.2	0.00253
León Cortés	San José	SJ20	8,222	240	0.0205	48.0	0.00487
Alajuela	Alajuela	AL 1	174,181	2,679	0.0085	117.2	0.00212
San Ramón	Alajuela	AL 2	54,223	910	0.0116	85.4	0.00286
Grecia	Alajuela	AL 3	51,414	883	0.0141	69.9	0.00346
San Mateo	Alajuela	AL 4	3,819	315	0.0144	69.6	0.00329
Atenas	Alajuela	AL 5	17,705	559	0.0135	73.5	0.00326
Naranjo	Alajuela	AL 6	28,249	588	0.0110	90.0	0.00273
Palmares	Alajuela	AL 7	25,581	590	0.0157	62.8	0.00396
Poás	Alajuela	AL 8	18,407	553	0.0136	72.8	0.00334
Orotina	Alajuela	AL 9	13,120	552	0.0091	109.7	0.00225
San Carlos	Alajuela	AL10	89,550	1,215	0.0103	96.2	0.00256
Zarcero	Alajuela	AL11	8,024	298	0.0327	29.7	0.00761
Valverde Vega	Alajuela	AL12	12,877	414	0.0153	64.7	0.00365
Upala	Alajuela	AL13	22,132	789	0.0070	143.1	0.00175
Los Chiles	Alajuela	AL14	9,413	565	0.0075	134.9	0.00178
Guatuso	Alajuela	AL15	9,136	494	0.0085	118.6	0.00207
Cartago	Cartago	CA 1	106,642	1,594	0.0095	104.0	0.00234
Paraíso	Cartago	CA 2	40,239	703	0.0128	77.0	0.00321
La Unión	Cartago	CA 3	59,863	1,801	0.0072	138.7	0.00178

Jiménez	Cartago	CA 4	10,692	354	0.0127	78.5	0.00305
Turrialba	Cartago	CA 5	52,139	917	0.0092	108.3	0.0023
Alvarado	Cartago	CA 6	8,764	276	0.0190	52.1	0.00455
Oreamuno	Cartago	CA 7	31,077	640	0.0157	62.9	0.00380
El Guarco	Cartago	CA 8	27,945	699	0.0126	78.5	0.00319
Heredia	Heredia	HE 1	85,753	2,550	0.0071	139.8	0.00178
Barva	Heredia	HE 2	27,845	989	0.0104	95.4	0.00255
Santo Domingo	Heredia	HE 3	30,931	1,266	0.0101	98.6	0.00253
Santa Bárbara	Heredia	HE 4	23,079	728	0.0124	80.0	0.00300
San Rafael	Heredia	HE 5	29,797	1,086	0.0131	75.8	0.00320
San Isidro	Heredia	HE 6	13,342	746	0.0123	80.7	0.00320
Belén	Heredia	HE 7	16,106	985	0.0133	74.6	0.00318
Flores	Heredia	HE 8	13,945	717	0.0123	80.5	0.00301
San Pablo	Heredia	HE 9	18,578	1,043	0.0093	107.4	0.00231
Sarapiquí	Heredia	HE10	27,069	846	0.0069	144.3	0.00176
Liberia	Guanacaste	GU 1	38,308	1,152	0.0069	145.3	0.00171
Nicoya	Guanacaste	GU 2	35,999	749	0.0125	79.5	0.00316
Santa Cruz	Guanacaste	GU 3	35,076	910	0.0128	77.3	0.00331
Bagaces	Guanacaste	GU 4	11,373	549	0.0099	101.3	0.00237
Carrillo	Guanacaste	GU 5	20,376	766	0.0112	88.7	0.00284
Cañas	Guanacaste	GU 6	17,494	705	0.0076	131.0	0.00191
Abangares	Guanacaste	GU 7	11,805	463	0.0077	129.6	0.00193
Tilarán	Guanacaste	GU 8	13,248	467	0.0122	81.3	0.00289
Nandayure	Guanacaste	GU 9	7,526	365	0.0108	92.9	0.00259
La Cruz	Guanacaste	GU10	9,404	541	0.0010	100.1	0.00250
Hojancha	Guanacaste	GU11	5,173	268	0.0146	68.5	0.00354
Puntarenas	Puntarenas	PA 1	77,385	1,541	0.0064	156.6	0.00159
Esparza	Puntarenas	PA 2	19,134	742	0.0084	119.2	0.00208
Buenos Aires	Puntarenas	PA 3	27,656	561	0.0101	98.8	0.00258
Montes de Oro	Puntarenas	PA 4	8,771	455	0.0104	96.5	0.00267
Osa	Puntarenas	PA 5	18,840	711	0.0070	143.8	0.00171
Aguirre	Puntarenas	PA 6	16,815	690	0.0078	128.8	0.00197
Golfito	Puntarenas	PA 7	25,047	902	0.0066	150.9	0.00161
Coto Brus	Puntarenas	PA 8	26,192	610	0.0086	116.4	0.00211
Parrita	Puntarenas	PA 9	9,993	492	0.0094	107.0	0.00248
Corredores	Puntarenas	PA10	28,460	984	0.0065	153.0	0.00160
Garabito	Puntarenas	PA11	8,872	660	0.0083	120.6	0.00205
Limón (Central)	Limón	LI 1	61,603	2,832	0.0042	236.2	0.00108
Pococí	Limón	LI 2	76,365	1,506	0.0069	143.6	0.00175
Siquirres	Limón	LI 3	34,968	1,351	0.0058	173.0	0.00144
Talamanca	Limón	LI 4	15,697	1,192	0.0094	106.7	0.00239
Matina	Limón	LI 5	18,360	1,013	0.0058	172.6	0.00143
Guácimo	Limón	LI 6	23,972	946	0.0070	143.8	0.00169

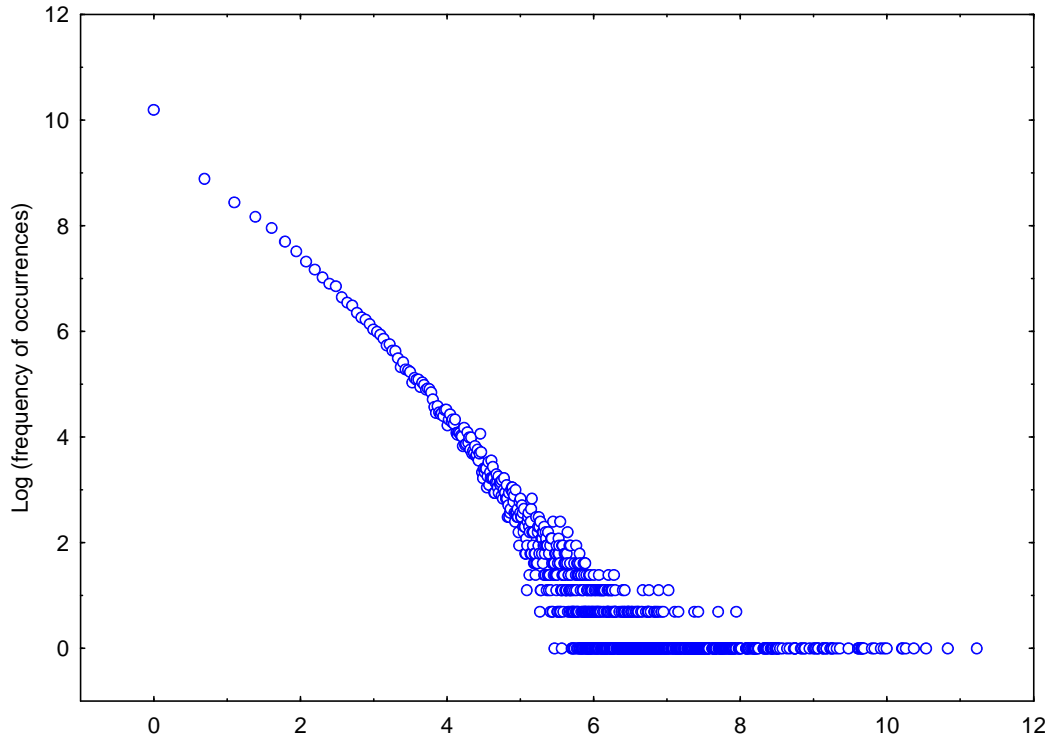


Fig. S1 - Variation of the number of occurrences in 2.9 million paternal surnames in Costa Rica. Electors of 2012 . Bilogarithmic scale, natural log.

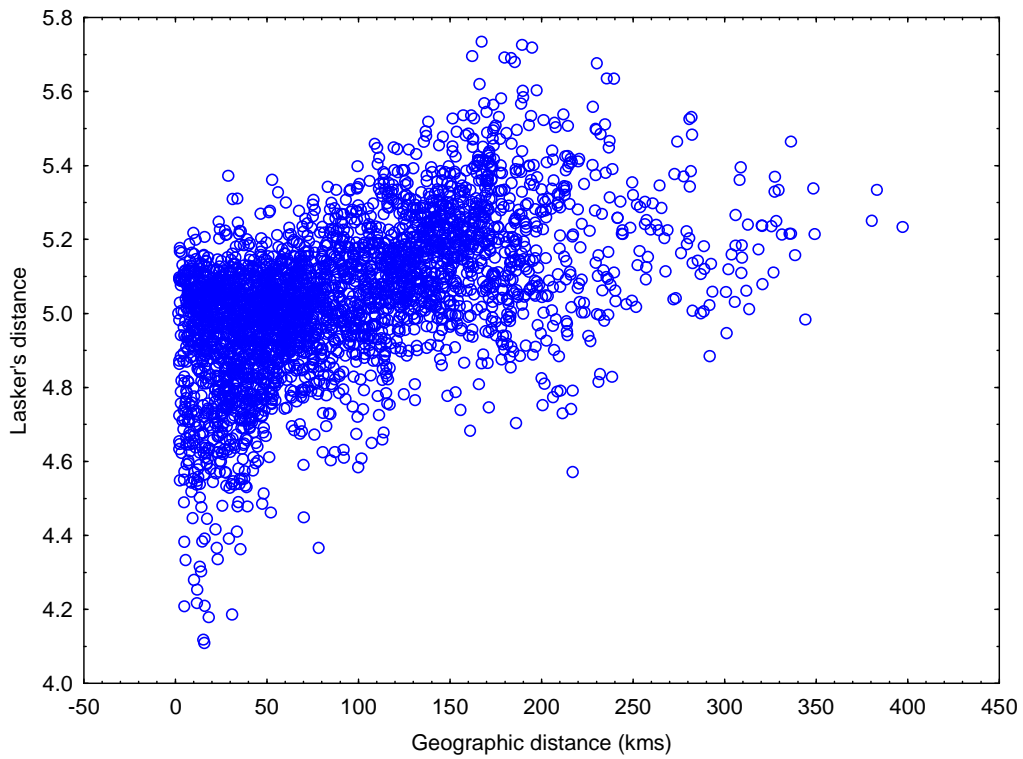


Fig. S2 - Variation of Lasker's distance between cantons with geographic distance in Costa Rica.

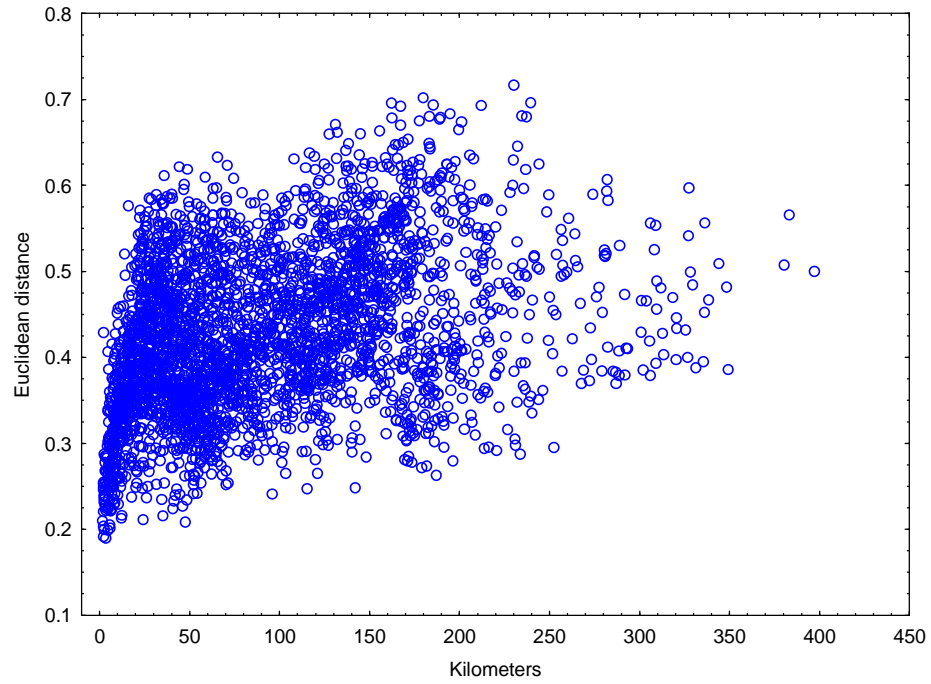


Fig. S3 - Variation of Euclidean distance between cantons with geographic distance in Costa Rica.

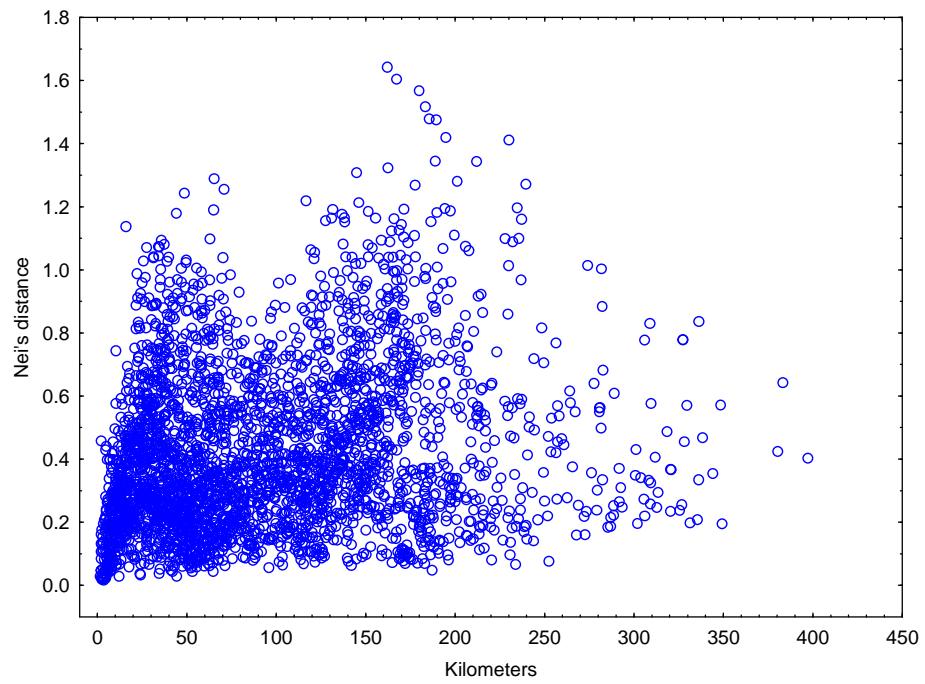


Fig. S4 - Variation of Nei's distance between cantons with geographic distance in Costa Rica.

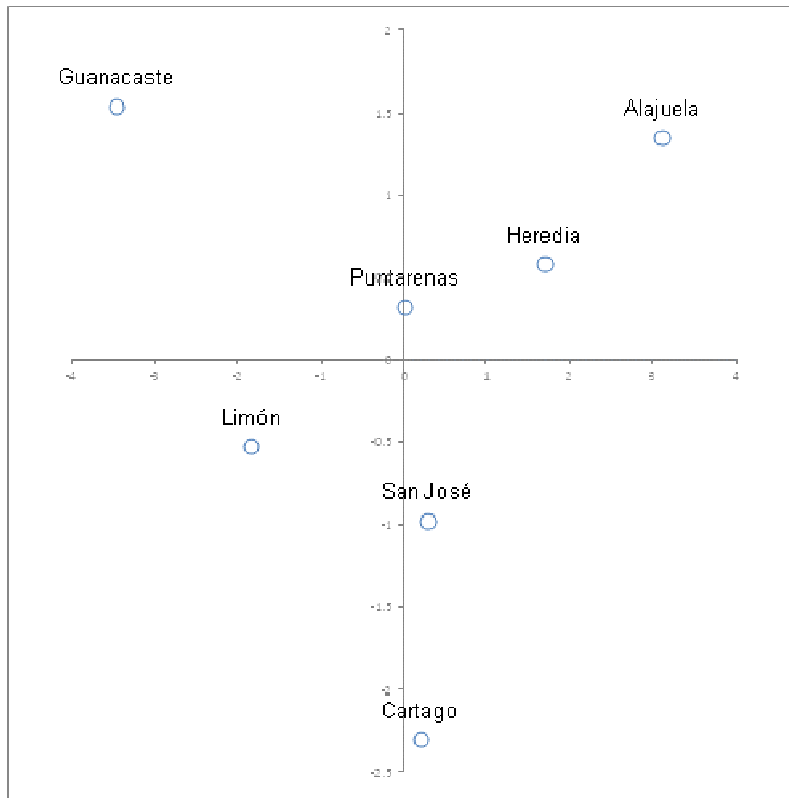


Fig. S5A - Projection of the of the first two axes of PCA matrix of Lasker's distances between the seven provinces of Costa Rica. (1^o Fact: 66.7%; 2^o Fact: 26.7%).

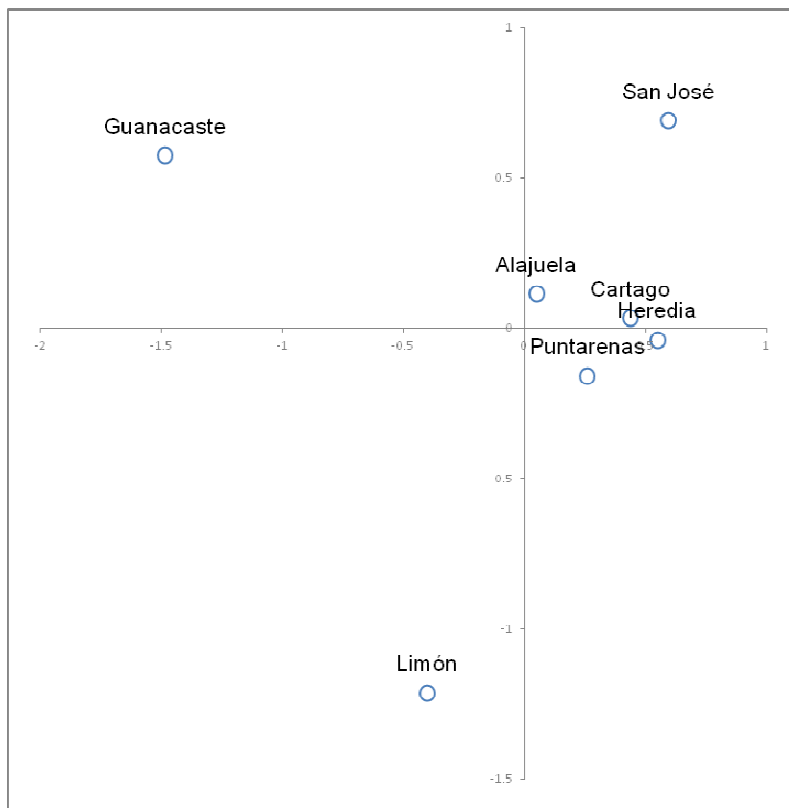


Fig. S5B - Projection of the first two dimensions of MDS of Lasker's distance between the seven provinces (stress= 1.23%)

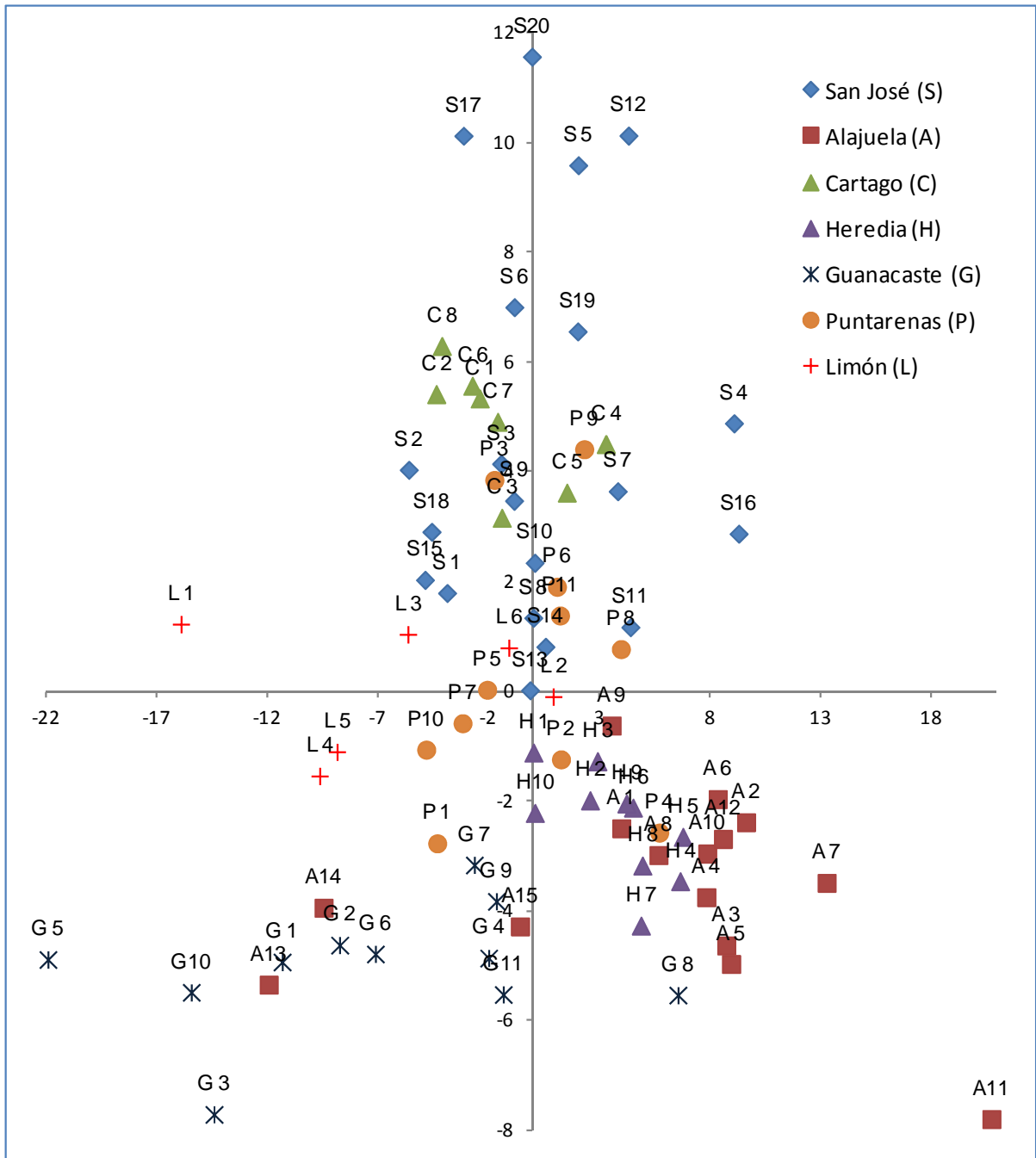


Fig. S6A - Projection on the first two factors of the PCA for the matrix of Lasker's distances between the 81 cantons of Costa Rica. (1° Fact.: 59.15% ; 2° Fact.: 23.06% ; 3° Fact.: 6.36%).

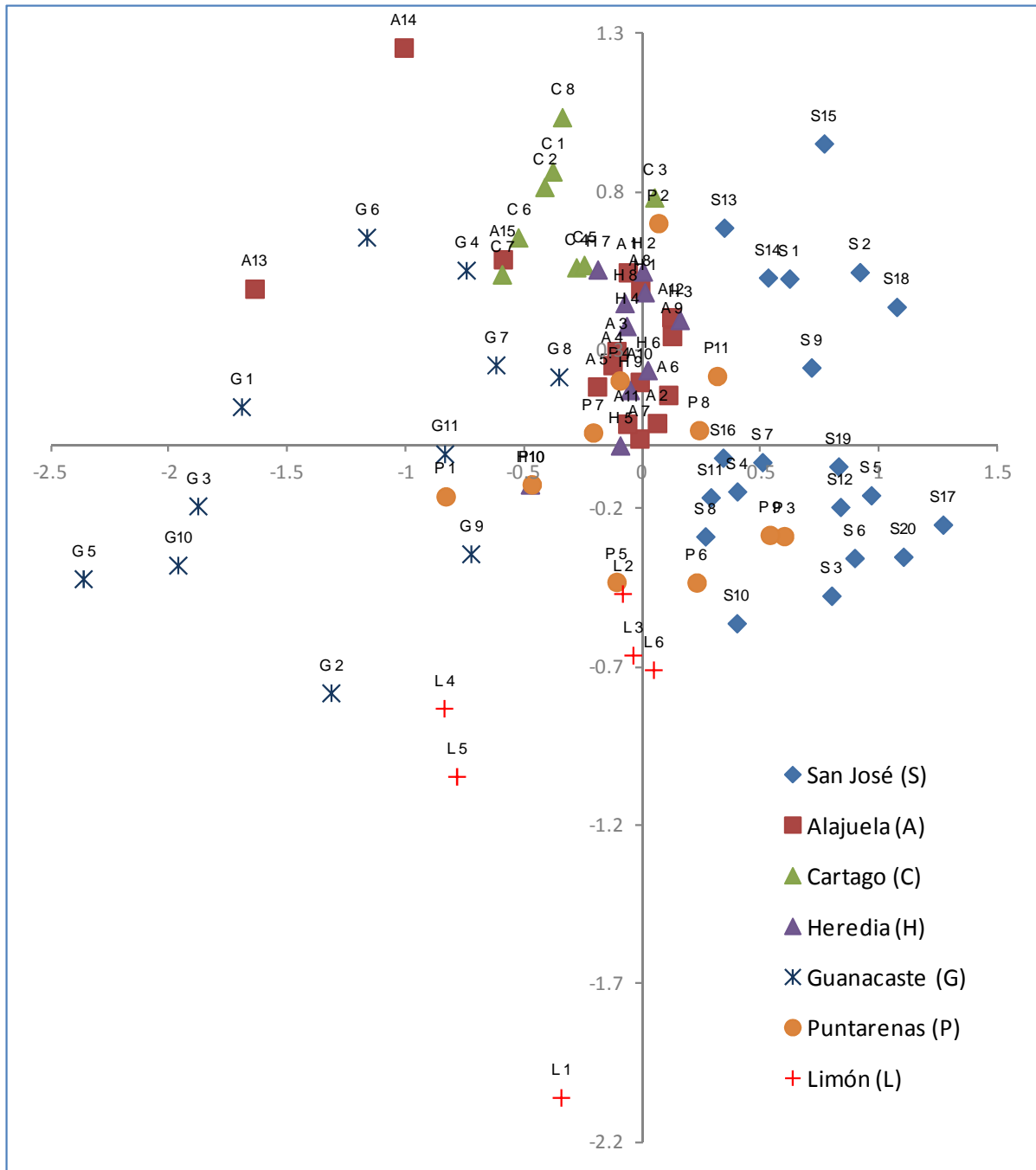


Fig. S6B - MDS projection of Lasker's distance matrix between 81 cantons of Costa Rica (stress= 16.1%).

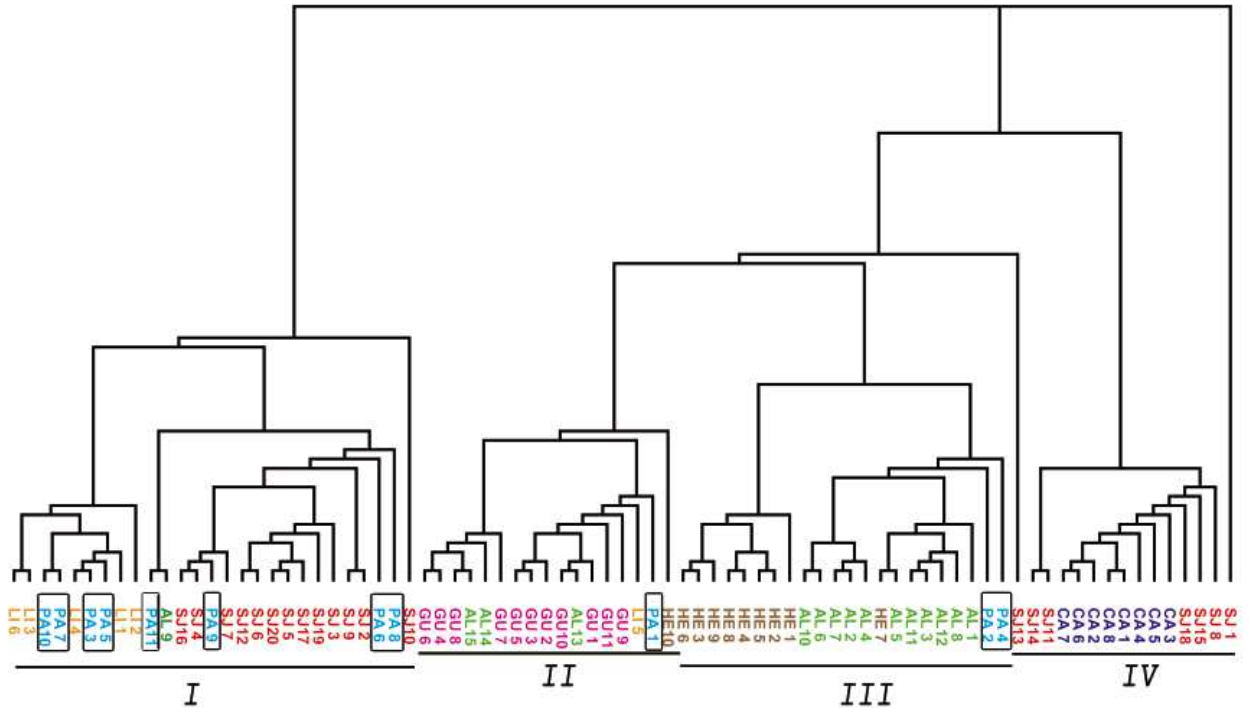


Fig. S7 - Dendrogram of Costa Rica cantons. From Lasker's distance matrix. PHYLIP package, Neighbor algorithm.

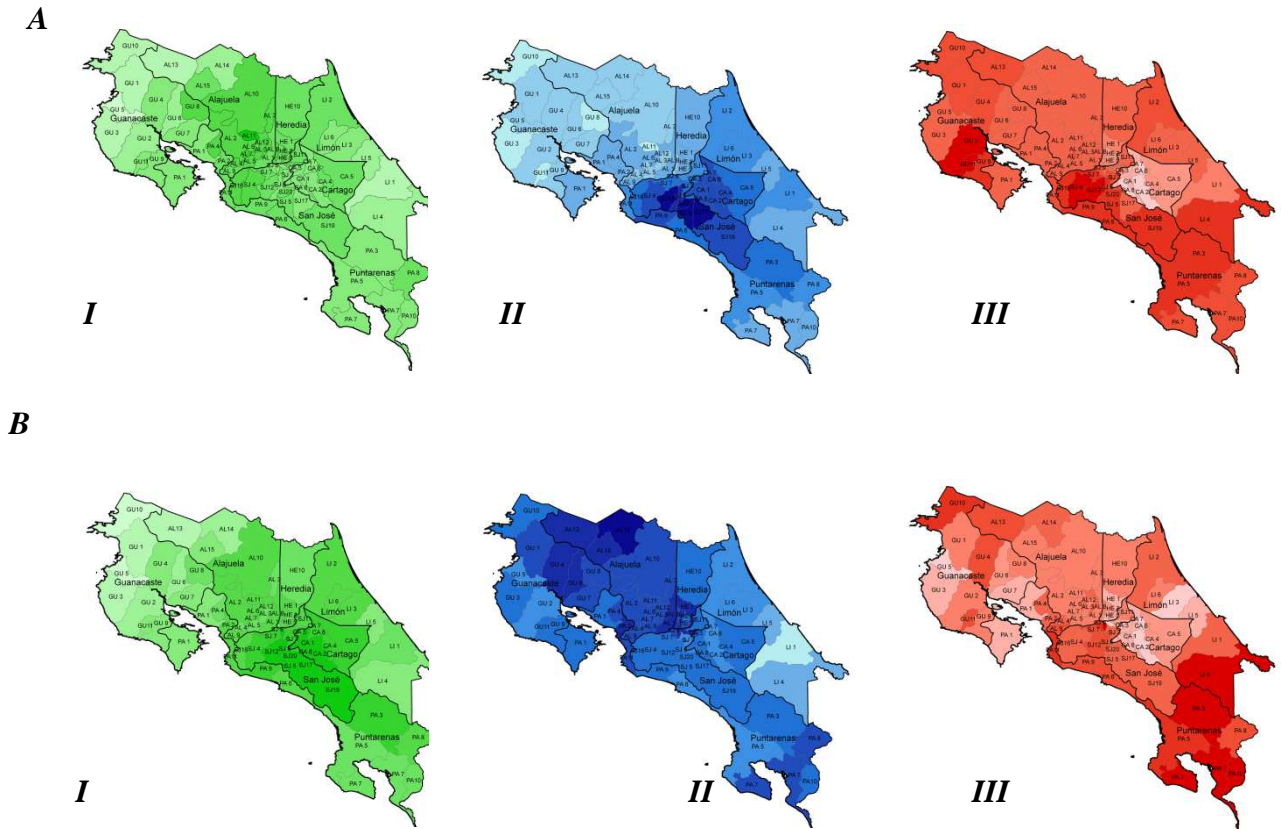


Fig. S8 - Projection of Lasker's matrix of surname distances on cantons in Costa Rica by mapping (A) the first three PCA's factors (I: Factor 1 = 44.36.5%; II: Factor 2 = 26.03%; III: Factor 3 = 13.86%); (B) the first three MDS's dimensions (I: Dimension 1; II: Dimension 2; III: Dimension 3. Stress=16.1%).