

Supplementary Material

Table S1. The main descriptive statistics calculated for the 6 considered variables on data of the first census date.

Descriptive statistic	UAA	IA	AL	PC	PG	TAA	TE
	M of ha	M of ha	M of ha	M of ha	M of ha	M of ha	M of ha
Mean	2306.87	230.26	1104.21	455.02	739.12	3082.57	4764.70
Errore standard	36.51	7.32	22.43	10.67	17.56	46.06	57.62
Median	960.85	12.95	252.34	82.21	108.17	1333.15	2633.03
Moda	133.22	0.00	0.00	0.00	0.00	369.28	3976.74
Std. Deviation	4685.78	939.67	2879.17	1369.94	2254.00	5911.45	7395.56
Variance	21956497.35	882970.82	8289642.89	1876726.79	5080507.74	34945190.69	54694258.43
Kurtosis	123.89	261.32	226.15	131.74	461.36	89.96	86.44
Skewness	8.33	13.07	11.19	9.42	14.40	7.28	6.94
Minimum	0.01	0.00	0.00	0.00	0.00	0.01	2.58
Maximum	123549.62	31346.00	91594.15	34608.33	112121.30	138549.76	175022.91
Sum	38003389.31	3793266.01	18190682.78	7495981.34	12176296.11	50782204.41	78493611.18

TAA, total agricultural area; UAA, utilized agricultural area; IA, irrigated area; PC, permanent crops; AL, arable lands; PG, permanent grassland; M of ha, millions of hectares.

Table S2. The main descriptive statistics calculated for the 6 considered variables on data of the first census date.

Descriptive statistic	UAA	IA	AL	PC	PG	TAA	TE
	M of ha	M of ha	M of ha	M of ha	M of ha	M of ha	M of ha
Mean	2157.3	268.3	982.6	425.8	420.1	2759.8	4770.5
Errore standard	33.9	8.1	20.3	10.2	9.1	41.4	57.7
Median	878.7	31.1	195.2	67.6	76.5	1178.5	2636.0
Moda	111.1	0.0	0.0	0.0	0.0	141.3	3976.7
Std. Deviation	4348.3	1042.3	2605.1	1306.4	1169.3	5309.6	7399.5
Variance	18907352.0	1086379.9	6786639.9	1706725.5	1367221.3	28192082.1	54751861.6
Kurtosis	120.1	279.6	210.1	115.1	110.6	101.3	86.4
Skewness	8.1	13.4	10.8	8.9	8.2	7.5	6.9
Minimum	0.0	0.0	-40.4	0.0	0.0	0.1	2.6
Maximum	106061.4	36700.5	85867.9	30152.9	31802.9	131112.0	175022.9
Sum	35490050.7	4414093.8	16164647.9	7004717.6	6910974.3	45401657.5	78479528.3

TAA, total agricultural area; UAA, utilized agricultural area; IA, irrigated area; PC, permanent crops; AL, arable lands; PG, permanent grassland; M of ha, millions of hectares.

Table S3. Descriptive statistics of variables within each cluster (census 2000).

Statistics	Variable	C1	C 2	C 3	C 4	C 5	Variable	C 1	C 2	C 3	C4	C5	
Mean	TAA	0.58	0.64	0.29	0.52	0.60	UAA	0.71	0.80	0.59	0.85	0.80	
SE		0.00	0.00	0.00	0.01	0.00		0.00	0.00	0.00	0.00	0.01	0.00
Median		0.61	0.69	0.29	0.57	0.61		0.76	0.85	0.59	0.93	0.84	
Mode		1.00	1.00	0.18	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
SD		0.28	0.26	0.15	0.28	0.22		0.25	0.19	0.21	0.19	0.18	
Sample Var.		0.08	0.07	0.53	0.08	0.05		0.06	0.04	0.35	0.03	0.03	
CV		0.48	0.41	0.02	0.54	0.36		0.35	0.24	0.04	0.22	0.23	
Kurtosis		-1.00	-0.71	-0.33	-1.01	-0.24		-0.63	1.09	-0.52	2.91	1.90	
Skewness		-0.26	-0.48	0.24	-0.26	-0.27		-0.62	-1.22	-0.09	-1.89	-1.41	
Range		1.00	1.00	0.81	1.00	1.00		0.99	0.98	0.99	0.90	0.97	
Minimum		0.00	0.00	0.00	0.00	0.00		0.01	0.02	0.01	0.10	0.03	
Maximum		1.00	1.00	0.81	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Sum		2531	4015	694	288	1638		3061	4963	1436	468	2175	
Mean	IA	0.03	0.07	0.07	0.67	0.23	AL	0.16	0.76	0.25	0.75	0.14	
SE		0.00	0.00	0.00	0.01	0.01		0.00	0.00	0.00	0.01	0.00	
Median		0.00	0.01	0.01	0.66	0.08		0.12	0.78	0.24	0.81	0.10	
Mode		0.00	0.00	0.00	1.00	0.00		0.00	1.00	0.00	1.00	0.00	
SD		0.08	0.11	0.11	0.18	0.30		0.16	0.19	0.19	0.19	0.13	
Sample Var.		0.01	0.01	1.59	0.03	0.09		0.03	0.03	0.76	0.04	0.02	
CV		2.45	1.62	0.01	0.27	1.30		0.97	0.25	0.04	0.25	0.96	
Kurtosis		36.99	4.20	5.01	-0.84	0.42		-0.21	-0.44	-1.12	-0.70	0.35	
Skewness		5.20	2.11	2.18	0.02	1.32		0.85	-0.58	0.27	-0.59	1.04	
Range		0.89	0.70	0.67	0.75	1.00		0.74	0.96	0.73	0.84	0.69	

Minimum		0.00	0.00	0.00	0.25	0.00		0.00	0.04	0.00	0.16	0.00	
Maximum		0.89	0.70	0.67	1.00	1.00		0.74	1.00	0.73	1.00	0.69	
Sum		133	418	171	369	634		714	4722	603	414	383	
Mean	PC	0.05	0.11	0.57	0.19	0.77	PG	0.78	0.13	0.15	0.04	0.07	
SE		0.00	0.00	0.00	0.01	0.00		0.00	0.00	0.00	0.00	0.00	0.00
Median		0.01	0.05	0.54	0.14	0.80		0.81	0.07	0.06	0.01	0.01	
Mode		0.00	0.00	0.00	0.00	1.00		1.00	0.00	0.00	0.00	0.00	
SD		0.08	0.12	0.24	0.18	0.17		0.18	0.14	0.19	0.06	0.13	
Sample Var.		0.01	0.02	0.42	0.03	0.03		0.03	0.02	1.25	0.00	0.02	
CV		1.59	1.18	0.06	0.94	0.23		0.23	1.08	0.03	1.61	1.78	
Kurtosis		5.25	0.94	-0.62	-0.70	-0.35		-0.70	0.01	0.50	5.46	5.59	
Skewness		2.22	1.26	0.01	0.71	-0.62		-0.56	1.03	1.28	2.28	2.40	
Range		0.49	0.70	1.00	0.68	1.00		0.77	0.60	0.79	0.36	0.72	
Minimum		0.00	0.00	0.00	0.00	0.00		0.23	0.00	0.00	0.00	0.00	
Maximum		0.49	0.70	1.00	0.68	1.00		1.00	0.60	0.79	0.36	0.72	
Sum		222	657	1369	104	2097		3371	797	361	21	201	

SE, standard error; SD, standard deviation; CV, coefficients of variation; TAA, total agricultural area; UAA, utilized agricultural area; IA, irrigated area; PC, permanent crops; AL, arable lands; PG, permanent grassland.

Table S4. Descriptive statistics of variables within each cluster (census 2010).

Statistics	Variable	C6	C7	C8	C9	C10	Variable	C6	C7	C8	C9	C10	
Mean	TAA	0,53	0,58	0,71	0,27	0,25	UAA	0,84	0,81	0,76	0,72	0,68	
SE		0,00	0,00	0,00	0,00	0,00		0,00	0,00	0,00	0,00	0,00	0,00
Median		0,53	0,59	0,71	0,26	0,24		0,91	0,87	0,81	0,78	0,72	
Mode		1,00	1,00	1,00	0,20	0,18		1,00	0,97	1,00	1,00	1,00	
SD		0,30	0,21	0,19	0,16	0,15		0,17	0,17	0,20	0,24	0,23	
Sample Var.		0,09	0,04	0,03	0,02	0,02		0,03	0,03	0,04	0,06	0,05	
CV		0,56	0,36	0,26	0,58	0,59		0,20	0,21	0,27	0,33	0,34	
Kurtosis		-1,23	-0,10	-0,83	-0,30	-0,80		1,92	1,49	0,33	-0,05	-0,29	
Skewness		0,01	-0,27	-0,17	0,44	0,22		-1,50	-1,35	-0,97	-0,86	-0,70	
Range		1,00	1,00	0,81	0,91	0,64		0,99	0,91	0,99	1,00	0,99	
Minimum		0,00	0,00	0,19	0,00	0,00		0,01	0,09	0,01	0,00	0,01	
Maximum		1,00	1,00	1,00	0,91	0,64		1,00	1,00	1,00	1,00	1,00	
Sum		2359	1376	3146	779	528		3768	1920	3352	2076	1455	
Mean	IA	0,26	0,26	0,04	0,07	0,14	AL	0,79	0,21	0,34	0,14	0,12	
SE		0,00	0,01	0,00	0,00	0,00		0,00	0,00	0,00	0,00	0,00	0,00
Median		0,15	0,11	0,01	0,02	0,09		0,84	0,19	0,31	0,09	0,10	
Mode		0,00	0,00	0,00	0,00	0,00		1,00	0,00	0,00	0,00	0,00	
SD		0,27	0,30	0,07	0,11	0,14		0,17	0,16	0,27	0,15	0,11	
Sample Var.		0,07	0,09	0,01	0,01	0,02		0,03	0,03	0,07	0,02	0,01	
CV		1,06	1,15	1,72	1,68	1,02		0,21	0,78	0,77	1,04	0,91	
Kurtosis		-0,47	-0,19	7,87	8,95	0,87		0,05	-1,04	-1,24	0,10	0,29	
Skewness		0,87	1,08	2,65	2,69	1,18		-0,91	0,37	0,26	1,00	0,93	
Range		1,00	1,00	0,56	0,87	0,69		0,84	0,65	0,99	0,71	0,57	
Minimum		0,00	0,00	0,00	0,00	0,00		0,16	0,00	0,00	0,00	0,00	
Maximum		1,00	1,00	0,56	0,87	0,69		1,00	0,65	0,99	0,71	0,57	

Sum		1148	617	182	191	289		3534	496	1520	409	262	
Mean	PC	0,10	0,69	0,08	0,13	0,75	PG	0,06	0,05	0,37	0,55	0,07	
SE		0,00	0,00	0,00	0,00	0,00		0,00	0,00	0,00	0,00	0,01	0,00
Median		0,04	0,71	0,03	0,05	0,77		0,03	0,02	0,29	0,55	0,03	
Mode		0,00	0,98	0,00	0,00	1,00		0,00	0,00	0,00	1,00	0,00	
SD		0,14	0,21	0,11	0,16	0,16		0,07	0,07	0,30	0,30	0,10	
Sample Var.		0,02	0,04	0,01	0,03	0,03		0,00	0,01	0,09	0,09	0,01	
CV		1,31	0,31	1,33	1,26	0,22		1,24	1,48	0,82	0,54	1,40	
Kurtosis		1,62	-1,10	1,17	0,90	-0,47		4,99	4,02	-1,02	-1,08	3,72	
Skewness		1,54	-0,26	1,42	1,33	-0,48		2,07	2,05	0,51	-0,14	1,93	
Range		0,67	0,81	0,53	0,76	0,79		0,48	0,41	1,00	1,00	0,60	
Minimum		0,00	0,19	0,00	0,00	0,21		0,00	0,00	0,00	0,00	0,00	
Maximum		0,67	1,00	0,53	0,76	1,00		0,48	0,41	1,00	1,00	0,60	
Sum		462	1626	352	368	1603		252	117	1637	1579	152	

SE, standard error; SD, standard deviation; CV, coefficients of variation; TAA, total agricultural area; UAA, utilized agricultural area; IA, irrigated area; PC, permanent crops; AL, arable lands; PG, permanent grassland.

Table S5. The cross-tabulation showing the transitions, in terms of municipality number and percentage, from clusters in 2000 (C1-C5) to clusters in 2010 (C6-C10). The cells with a value higher than 30% are highlighted in grey.

Clusters	C6		C7		C8		C9		C10	
	number	%	number	%	number	%	number	%	number	%
C1	143	3	48	1	2289	53	1741	40	108	2
C2	3465	56	357	6	1894	30	443	7	78	1
C3	357	15	283	12	139	6	483	20	1156	48
C4	441	80	64	12	10	2	20	4	15	3
C5	56	2	1614	59	102	4	180	7	783	29

Table S6. The cross-tabulation showing the transitions, in terms of surface and percentage, from clusters in 2000 (C1-C5) to clusters in 2010 (C6-C10). The cells with a value higher than 30% are highlighted in grey.

Clusters	C6		C7		C8		C9		C10	
	M ha	%	M ha	%	M ha	%	M ha	%	M ha	%
C1	631	3	434	2	15.147	61	8.122	33	403	2
C2	15.237	46	1.956	6	13.811	42	1.546	5	225	1
C3	862	11	1.084	14	752	9	1.753	22	3.571	45
C4	1.646	75	438	20	18	1	64	3	21	1
C5	82	1	6.937	67	387	4	573	5	2.450	23

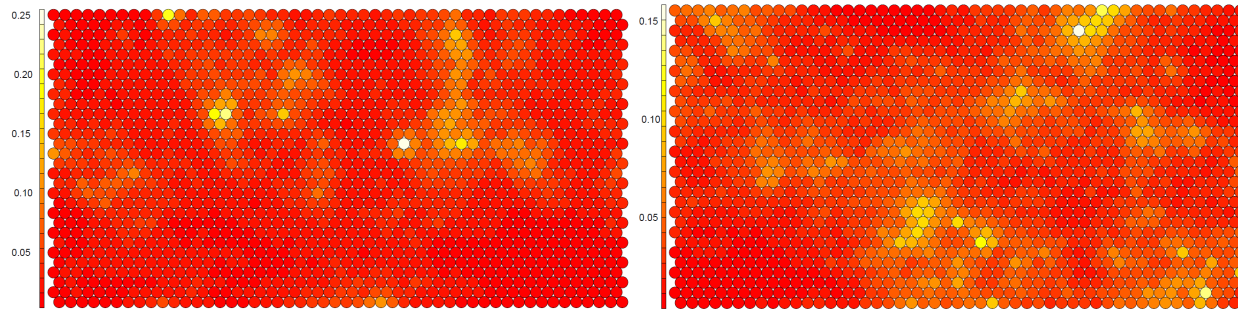


Figure S1. Neighborhood distance maps (census 2000 on the left and census 2010 on the right). Gradient color scales: yellow=low, red=high values.

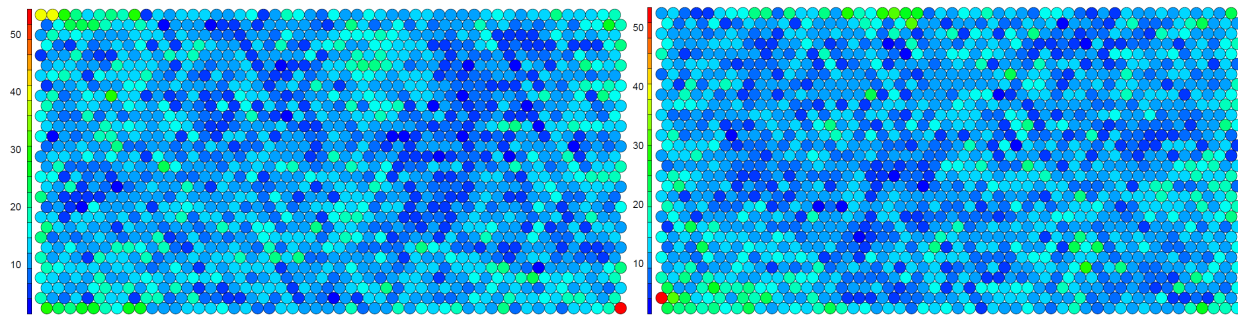


Figure S2. Node counts maps (census 2000 on the left and census 2010 on the right). Gradient color scales: blue=low, green=medium, red=high values.

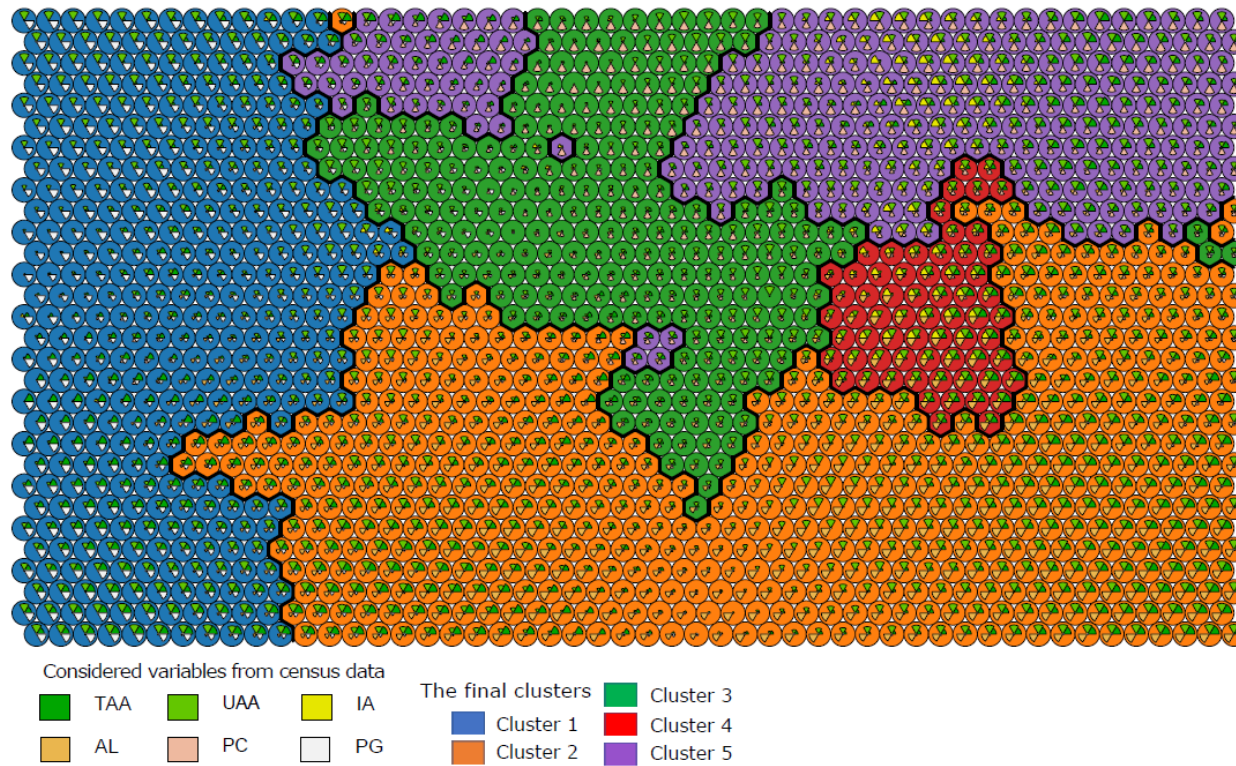


Figure S3. The final five clusters with codebooks for census data 2000.

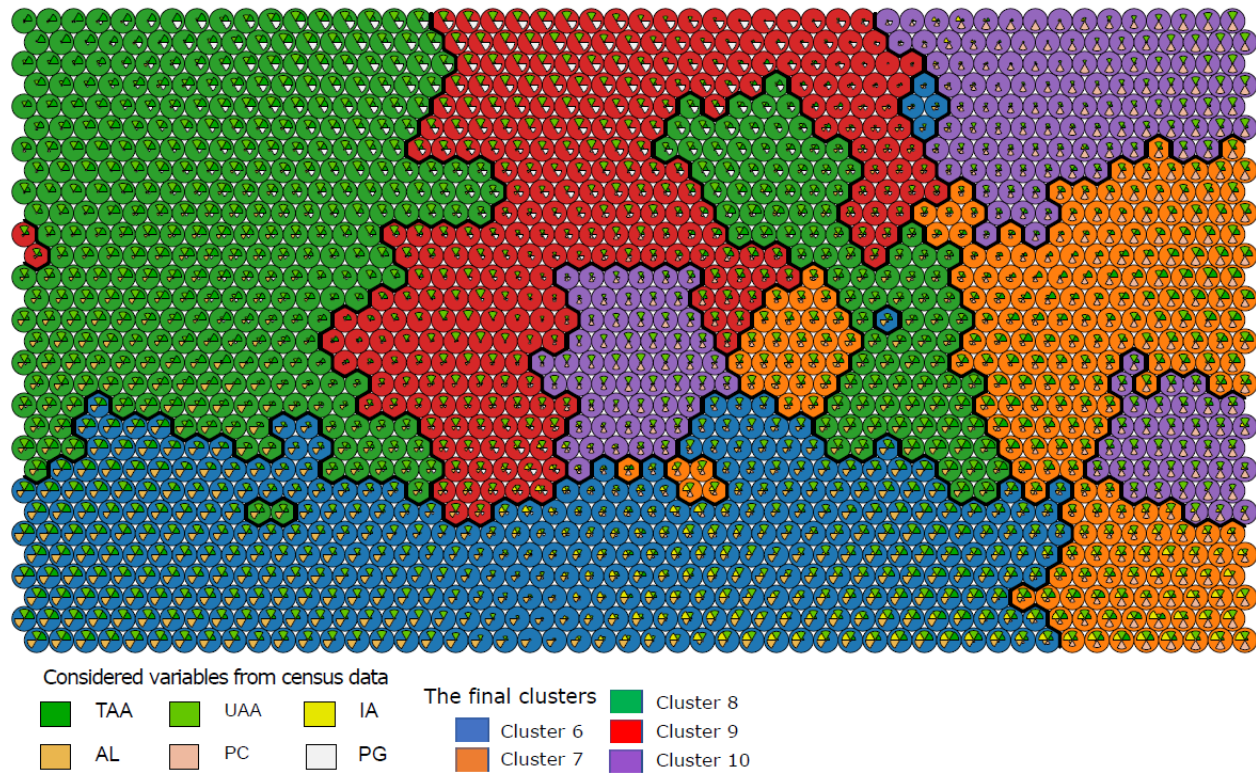


Figure S4. The final five clusters with codebooks for census data 2010.