ΠΑΝΕΠΙΣΤΗΜΙΟ ΘΕΣΣΑΛΙΑΣ

ανοικτάμαθήματα
opencourses

Ειδικά Θέματα Δημογραφίας: Χωρικές Διαστάσεις Δημογραφικών Δεδομένων

Ενότητα 4.4: Regional dynamics of population ageing in Greece, 1981-2001

Μιχάλης Αγοραστάκης, Ζαχαρούλα Μίχου

Τμήμα Μηχανικών Χωροταξίας, Πολεοδομίας & Περιφερειακής Ανάπτυξης

Ευρωπαϊκή Ένωση
Ευρωπαϊκό Κοινωνικό Ταμείο
ΕΠΙΧΕΙΡΗΣΙΑΚΟ ΠΡΟΓΡΑΜΜΑ
ΕΚΠΑΙΔΕΥΣΗ ΚΑΙ ΔΙΑ ΒΙΟΥ ΜΑΘΗΣΗ
επένδυση στην κοινωνία της γνώσης
ΥΠΟΥΡΓΕΙΟ ΠΑΙΔΕΙΑΣ & ΘΡΗΣΚΕΥΜΑΤΩΝ, ΠΟΛΙΤΙΣΜΟΥ & ΑΘΛΗΤΙΣΜΟΥ
ΕΙΔΙΚΗ ΥΠΗΡΕΣΙΑ ΔΙΑΧΕΙΡΙΣΗΣ
ΕΣΠΑ 2007-2013
πρόγραμμα για την ανάπτυξη
ΕΥΡΩΠΑΪΚΟ ΚΟΙΝΩΝΙΚΟ ΤΑΜΕΙΟ
Με τη συγχρηματοδότηση της Ελλάδας και της Ευρωπαϊκής Ένωσης

Άδειες Χρήσης

- Το παρόν εκπαιδευτικό υλικό υπόκειται σε άδειες χρήσης Creative Commons.
- Για εκπαιδευτικό υλικό, όπως εικόνες, που υπόκειται σε άλλου τύπου άδειας χρήσης, η άδεια χρήσης αναφέρεται ρητώς.

Χρηματοδότηση

- Το παρόν εκπαιδευτικό υλικό έχει αναπτυχθεί στα πλαίσια του εκπαιδευτικού έργου του διδάσκοντα.
- Το έργο «**Ανοικτά Ακαδημαϊκά Μαθήματα στο Πανεπιστήμιο Θεσσαλίας**» έχει χρηματοδοτήσει μόνο τη αναδιαμόρφωση του εκπαιδευτικού υλικού.
- Το έργο υλοποιείται στο πλαίσιο του Επιχειρησιακού Προγράμματος «Εκπαίδευση και Δια Βίου Μάθηση» και συγχρηματοδοτείται από την Ευρωπαϊκή Ένωση (Ευρωπαϊκό Κοινωνικό Ταμείο) και από εθνικούς πόρους.

INTRODUCTION (1)

During the postwar period, south European countries (Italy, Greece, Spain, and Portugal) have experienced remarkable demographic trends leading to an equally remarkable rapid population ageing (Tomassini & Lamura, 2009). In this paper we focus on Greece, from the beginning of the 80s as starting point since, at least at national level, completed its demographic transition, entering a period of falling below-replacement level fertility accompanied by low overall mortality, which both continue up to nowadays.

In Greece, the number of old persons (aged 65+ years) has doubled in 20 years (1951-1973) and quadruple in 60 years (1951-2009), figure 1. The older population grows faster than the total population as well as the young population (aged 0-14 years), especially since the 90s. Ageing index notes values close to 50% in the beginning of the 80s, 65% in 90s and above 100 in 2000s.

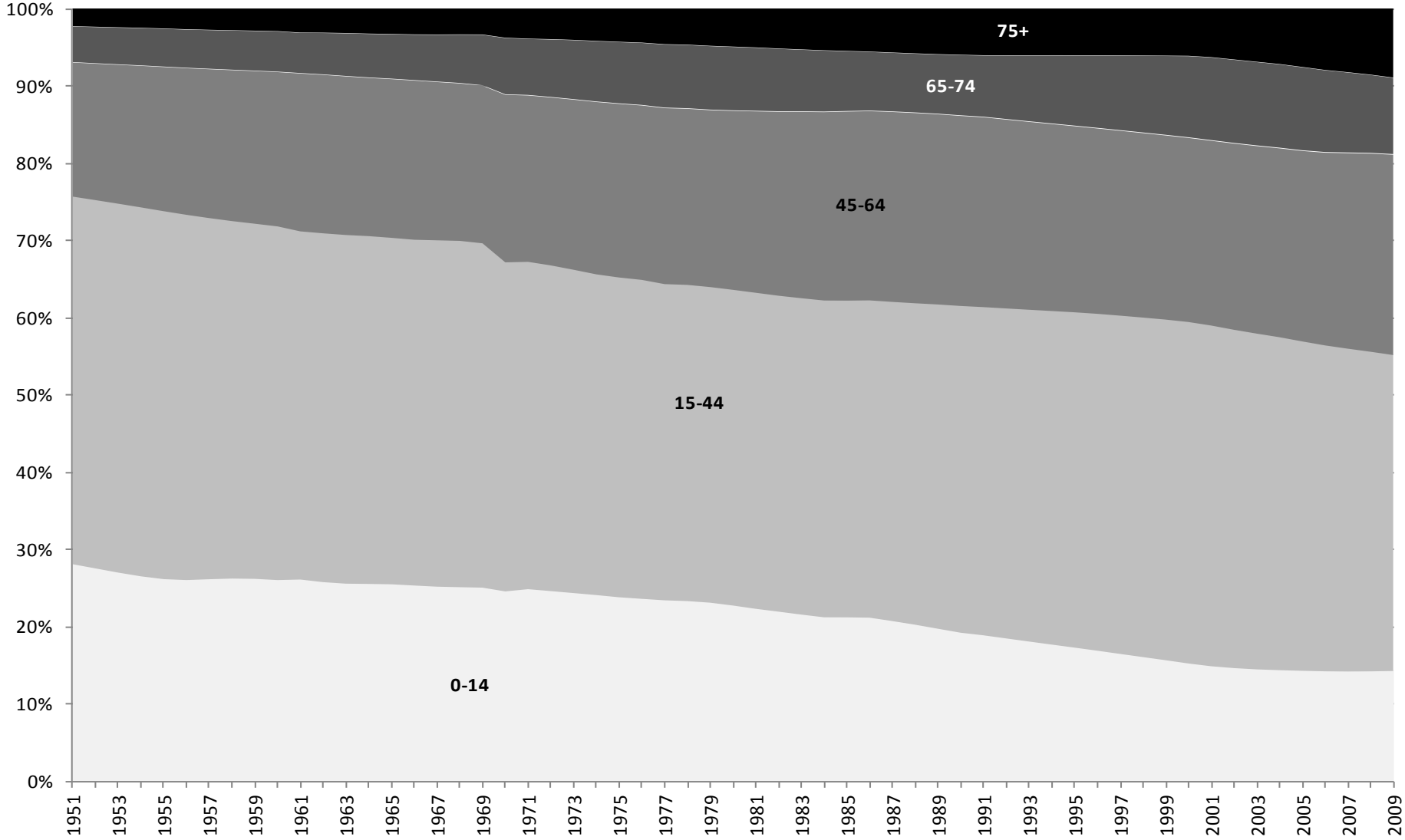
INTRODUCTION (2)

Ageing trends can also been seen in regional as well as in national level. However, ageing process is dissynchronous among Greek regions due to differentiated past and contemporary trends of fertility (Kotzamanis & Sofianopoulou, 2007), mortality (Agorastakis, 2012) and migration (both external (Kotzamanis et al., 2006) and internal (Michou, 2009).

In this paper we aim to address the following issues: firstly, the geographic variations of population ageing within three successive census years (1981-1991-2001) among 51 Greek departments and secondly, the dynamics of population ageing by determining the pace of ageing process for the intermediate periods 1981-1991 and 1991-2001, as well as a whole (1981-2001).

INTRODUCTION (3)

Figure 1: (%) distribution of selected age groups, Greece 1951-2009.



Source: ELSTAT, Estimated midyear population.

DATA & METHODS (1)

Population census data by sex and 5-year age groups were provided by the National Statistical Service of Greece (ELSTAT) for 1981, 1991 and 2001; corresponding to two spatial scales:

i) country as a total and ii) 51 regions (departments, NUTS level 3).

Before proceeding to the methodological part of this paper, issues regarding data quality and peculiarities originating, firstly, from census data per se and, secondly, from the ability of certain regions to attract individuals of specific age group and sex (strong selectivity effect), should be addressed.

Specifically, during the given period (1981-2001), neither census results nor population definitions derived or were uniformly, respectively.

The 1981 de facto population census results were based on a 10% sample of total households, while the later two successive censuses (1991, 2001) were based on the total number of households.

DATA & METHODS (2)

Additionally, usual resident population was introduced in 1991. The change of population definition, although insignificant at national level, is a matter of great consequence when lower spatial scales are considered. Especially in Greece, a paradox was observed during the census day concerning the last three censuses .

A substantial mobility, from the urban to the rural areas of the country was taking place, reflecting opposite streams of past internal migration flows; resulting in altering the population size and structure, both in place of origin and destination.

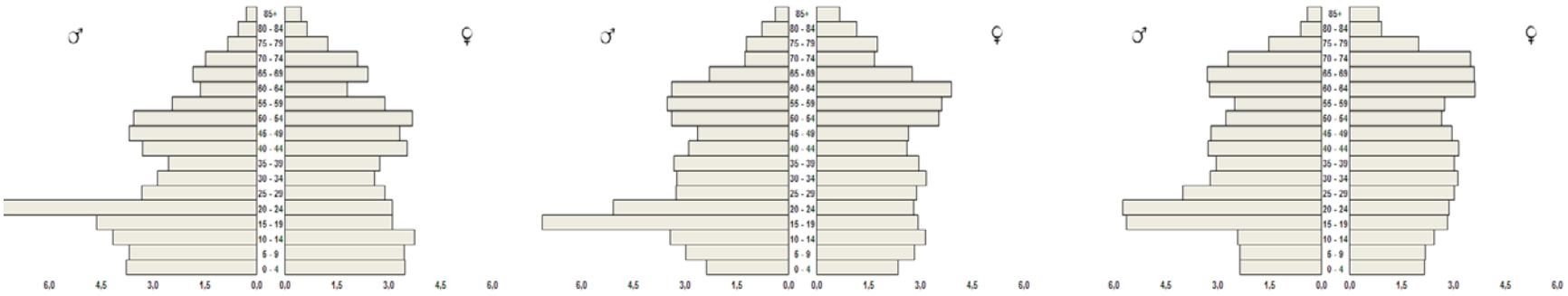
Subsequently, the lower the spatial scale, the higher the degree of alteration and greater the difference between de facto and usual resident population.

This paradox has small effect upon the selected spatial scale (departments) regarding 1981 census, however corresponding data and results should be treated with caution; while for 1991 and 2001 usual resident population data by age and sex were used.

DATA & METHODS (3)

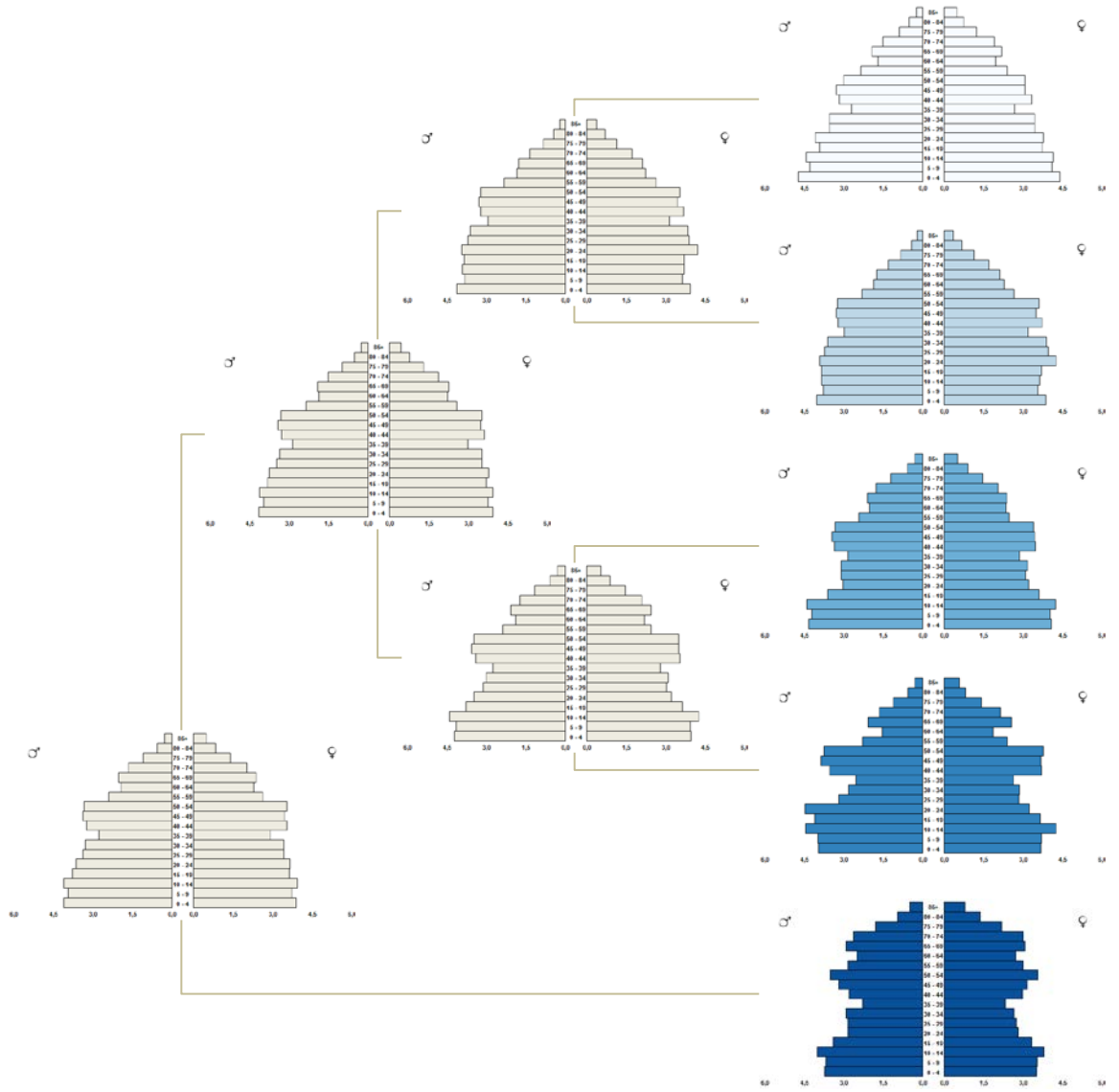
The second issue can be clearly seen in figure 2, where the population pyramid of Evros department is presented. The excess of males aged between 15 and 24 years is attributed to the presence of military to a small number of departments, mostly eastern island departments (Samos, Chios) and northern Greece (Kilkis, Evros). Since military service (a duration of 9 months) is still obligatory for males in Greece, soldiers are enumerated as part of the usual resident population. In our analysis we focus on the overall shape of the pyramids of those departments by ignoring the aforementioned age and sex selective phenomenon.

Figure 2: Population pyramid of Evros (1981, 1991 & 2001)



GEOGRAPHICAL VARIATIONS OF POPULATION AGEING (1)

Figure 3: Classification of population structures 1981



Map 1: Clusters of population structures 1981

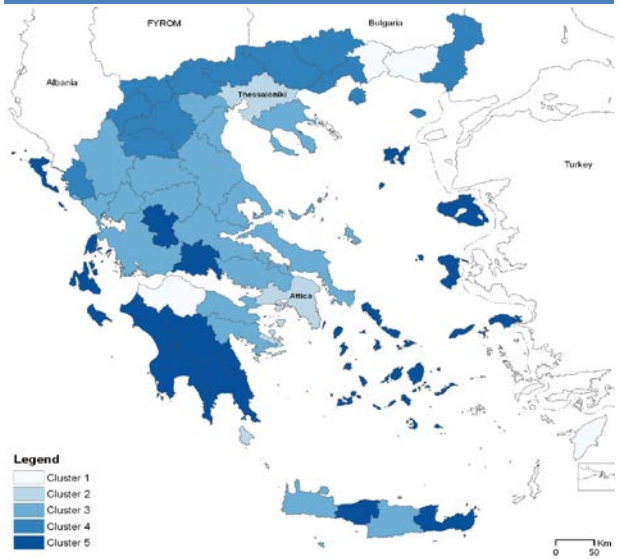


Table 1: Clusters 1981

		Clusters				
		1	2	3	4	5
	#	4	2	18	11	16
	(%)	**7,84**	**3,92**	**35,29**	**21,57**	**31,37**
Population	**0-14**	160.803	962.412	649.943	268.734	265.375
	15-44	255.120	1.866.212	991.179	442.680	404.505
	45-64	128.597	964.873	587.684	259.350	291.516
	15-64	383.717	2.831.085	1.578.863	702.030	696.021
	65+	71.990	446.670	342.166	147.884	228.999
	75+	25.411	154.279	128.646	53.578	90.783
	85+	4.408	23.487	21.323	9.880	15.267
	Total	**616.510**	**4.240.167**	**2.570.972**	**1.118.648**	**1.190.395**
(%)[1]	**0-14**	**26,08**	**22,70**	**25,28**	**24,02**	**22,29**
	15-44[2]	41,38	44,01	38,55	39,57	33,98
	45-64[2]	20,86	22,76	22,86	23,18	24,49
	15-64	**62,24**	**66,77**	**61,41**	**62,76**	**58,47**
	65+	**11,68**	**10,53**	**13,31**	**13,22**	**19,24**
	75+	4,12	3,64	5,00	4,79	7,63
	85+	0,71	0,55	0,83	0,88	1,28
	Total	**6,05**	**46,49**	**52,68**	**48,45**	**100,00**
	Mean Age	33,85	34,66	35,55	35,59	39,33
	Median Age	31,00	32,59	33,98	33,96	39,48
	Δ (mean-median)	2,85	2,07	1,58	1,63	-0,15
	Aging index	44,77	46,41	52,65	55,03	86,29
	Young dependency ratio	41,91	33,99	41,17	38,28	38,13
	Elderly dependency ratio	18,76	15,78	21,67	21,07	32,90

Notes: [1] (%) over the total population unless otherw ise specified [2] (%) over total population aged 15-64 years

Source: ELSTAT, Population Census 1981, authors' calculations

GEOGRAPHICAL VARIATIONS OF POPULATION AGEING (2)

Specifically for 1981 we identify the following population pyramid (structure) profiles:

Cluster 1: Relative young structure, wide base, 3 out of 10 belong to 0-14 age group, 1 out of 10 belong to 65+ age group, Δ(mean – median) 2,85 years – Dispersed geography, northern departments with Muslim population.

Cluster 2: Mature, moderate base, 2 out of 10 belong to 0-14 age group, 1 out of 10 belong to 65+ age group, Δ(mean – median) 2,07 years – Main urban centers Attica & Thessaloniki.

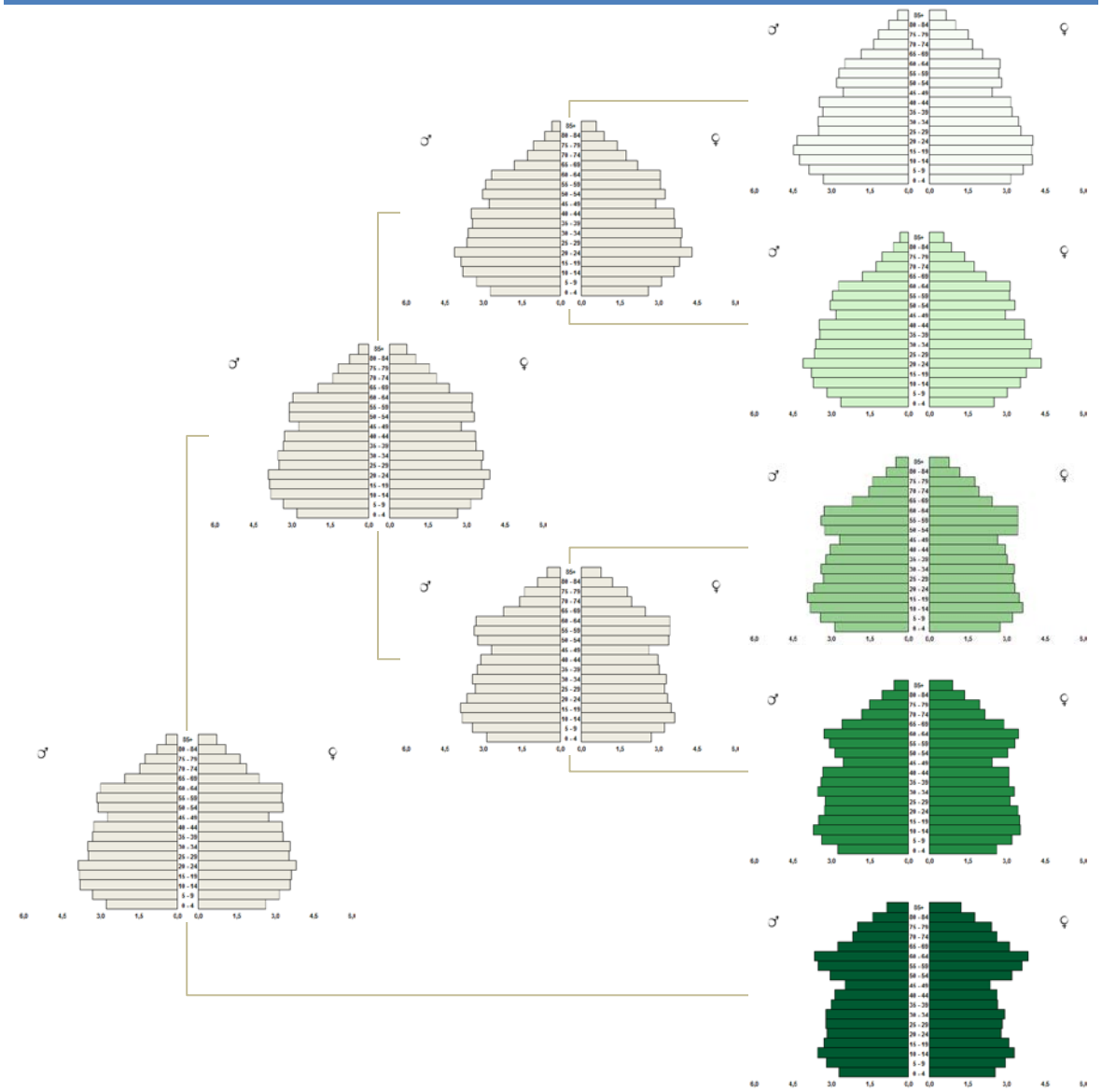
Cluster 3: Mature with irregularities (deficit of 1942-1966 cohorts), wide base, 3 out of 10 belong to 0-14 age group, 1 out of 10 belong to 65+ age group, Δ(mean – median) 1,57 years – Majority of mainland departments & Crete (35%).

Cluster 4: Mature with irregularities (deficit of 1942-1966 cohorts), moderate base, 1 out of 4 belong to 0-14 age group, 1 out of 10 belong to 65+ age group, Δ(mean – median) 1,63 years – Zoning across northern Greece.

Cluster 5: Ageing with irregularities (deficit of 1932-1966 cohorts), moderate base, 2 out of 10 belong to 0-14 age group, 2 out of 10 belong to 65+ age group, Δ(mean – median) -0,15 years – South mainland Greece and islands.

GEOGRAPHICAL VARIATIONS OF POPULATION AGEING (3)

Figure 4: Classification of population structures 1991



Map 2: Clusters of population structures 1991

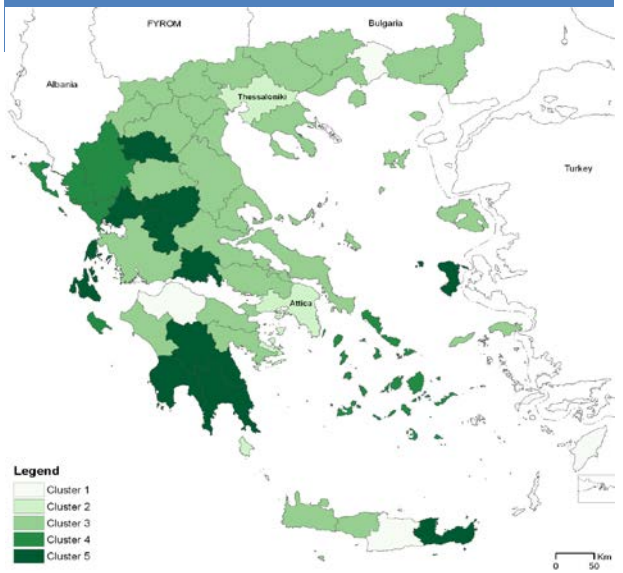


Table 2: Clusters 1991

		Clusters				
		1	2	3	4	5
	#	4	2	27	6	12
	(%)	**7,84**	**3,92**	**52,94**	**11,76**	**23,53**
Population	0-14	181.564	848.744	700.500	92.567	148.036
	15-44	359.696	2.078.479	1.417.674	191.866	290.516
	45-64	533.143	3.180.599	2.326.997	307.732	499.378
	15-64	173.447	1.102.120	909.323	115.866	208.862
	65+	101.914	538.574	516.439	80.801	164.989
	75+	45.278	217.669	229.382	35.275	78.475
	85+	8.784	40.796	44.698	6.993	16.963
	Total	**456.925**	**2.489.438**	**2.126.262**	**289.234**	**521.887**
(%)[1]	0-14	**39,74**	**34,09**	**32,95**	**32,00**	**28,37**
	15-44[2]	78,72	83,49	66,67	66,34	55,67
	45-64[2]	116,68	127,76	109,44	106,40	95,69
	15-64	**37,96**	**44,27**	**42,77**	**40,06**	**40,02**
	65+	**22,30**	**21,63**	**24,29**	**27,94**	**31,61**
	75+	9,91	8,74	10,79	12,20	15,04
	85+	1,92	1,64	2,10	2,42	3,25
	Total	**3,78**	**45,87**	**72,39**	**35,66**	**100,00**
	Mean Age	35,63	37,01	38,45	39,35	41,69
	Median Age	32,80	35,15	37,00	37,94	41,40
	Δ (mean-median)	2,83	1,86	1,45	1,41	0,29
	Aging index	56,13	63,46	73,72	87,29	111,45
	Young dependency ratio	104,68	77,01	77,04	79,89	70,88
	Elderly dependency ratio	58,76	48,87	56,79	69,74	78,99

Notes: [1] (%) over the total population unless otherwise specified [2] (%) over total population aged 15-64 years

Source: ELSTAT, Population Census 1991, authors' calculations

GEOGRAPHICAL VARIATIONS OF POPULATION AGEING (4)

For 1991:

Cluster 1: Mature structure, shrinking base, 2 out of 10 belong to 0-14 age group, 1 out of 10 belong to 65+ age group, Δ(mean – median) 2,83 years – Dispersed geography, all directions.

Cluster 2: Ageing, shrinking base, 2 out of 10 belong to 0-14 age group, 1 out of 10 belong to 65+ age group, Δ(mean – median) 1,86 years – Main urban centers Attica & Thessaloniki.

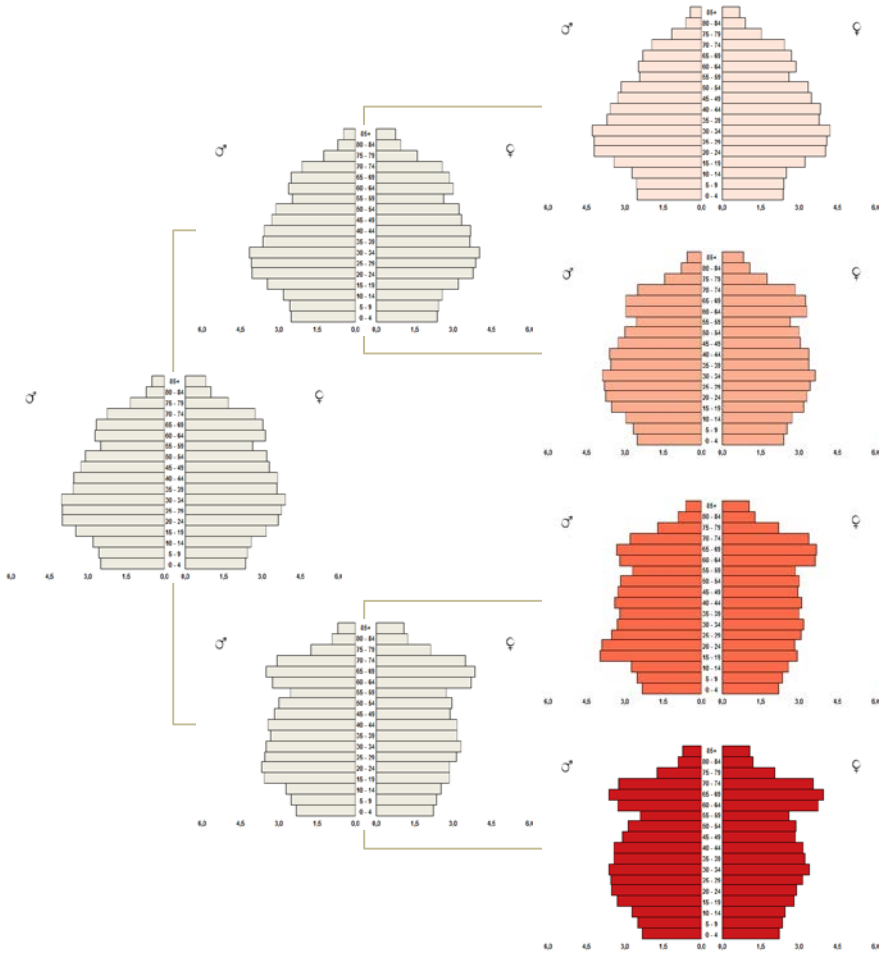
Cluster 3: Ageing, shrinking base, 2 out of 10 belong to 0-14 age group, 1 out of 10 belong to 65+ age group, Δ(mean – median) 1,45 years – Majority of mainland departments and Crete (53%).

Cluster 4: Ageing, shrinking base, 2 out of 10 belong to 0-14 age group, 2 out of 10 belong to 65+ age group, Δ(mean – median) 1,41 years – Geographical cluster, northwest.

Cluster 5: Old, shrinking base, 2 out of 10 belong to 0-14 age group, 2 out of 10 belong to 65+ age group, Δ(mean – median) 0,29 years – Mostly mountainous departments including islands.

GEOGRAPHICAL VARIATIONS OF POPULATION AGEING (5)

Figure 5: Classification of population structures 2001



Map 3: Clusters of population structures 2001

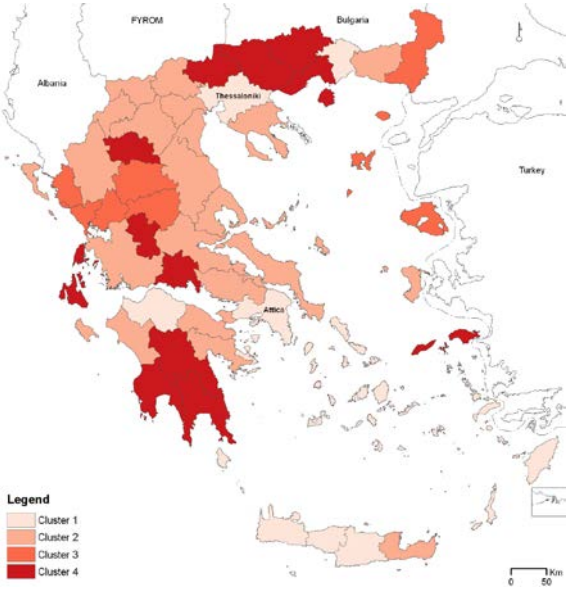


Table 3: Clusters 2001

		Clusters			
		1	2	3	4
	#	9	22	7	13
	(%)	**17,65**	**43,14**	**13,73**	**25,49**
Population	**0-14**	936.281	467.531	101.291	155.796
	15-44	2.895.408	1.255.067	270.259	422.464
	45-64	1.472.369	704.129	170.446	254.165
	15-64	4.367.777	1.959.196	440.705	676.629
	65+	913.497	533.235	143.894	236.304
	75+	331.948	190.895	53.462	82.516
	85+	69.866	41.327	11.357	19.251
	Total	**6.217.555**	**2.959.962**	**685.890**	**1.068.729**
(%)[1]	**0-14**	**15,06**	**15,80**	**14,77**	**14,58**
	15-44[2]	46,57	42,40	39,40	39,53
	45-64[2]	23,68	23,79	24,85	23,78
	15-64	**70,25**	**66,19**	**64,25**	**63,31**
	65+	**14,69**	**18,01**	**20,98**	**22,11**
	75+	5,34	6,45	7,79	7,72
	85+	1,12	1,40	1,66	1,80
	Total	**56,87**	**62,78**	**39,09**	**100,00**
	Mean Age	38,90	40,34	42,10	42,54
	Median Age	37,17	39,13	41,79	41,90
	Δ (mean-median)	1,73	1,21	0,31	0,64
	Aging index	97,57	114,05	142,06	151,68
	Young dependency ratio	21,44	23,86	22,98	23,03
	Elderly dependency ratio	20,91	27,22	32,65	34,92

Notes: [1] (%) over the total population unless otherwise specified [2] (%) over total population aged 15-64 years

Source: ELSTAT, Population Census 2001, authors' calculations

GEOGRAPHICAL VARIATIONS OF POPULATION AGEING (6)

For 2001:

Cluster 1: Ageing, narrow base, 2 out of 10 belong to 0-14 age group, 1 out of 10 belong to 65+ age group, Δ(mean – median) 1,73 years – Main urban centers including south Aegean islands.

Cluster 2: Ageing, narrow base, 2 out of 10 belong to 0-14 age group, 2 out of 10 belong to 65+ age group, Δ(mean – median) 1,21 years – Dispersed geography, majority of the departments (43%).

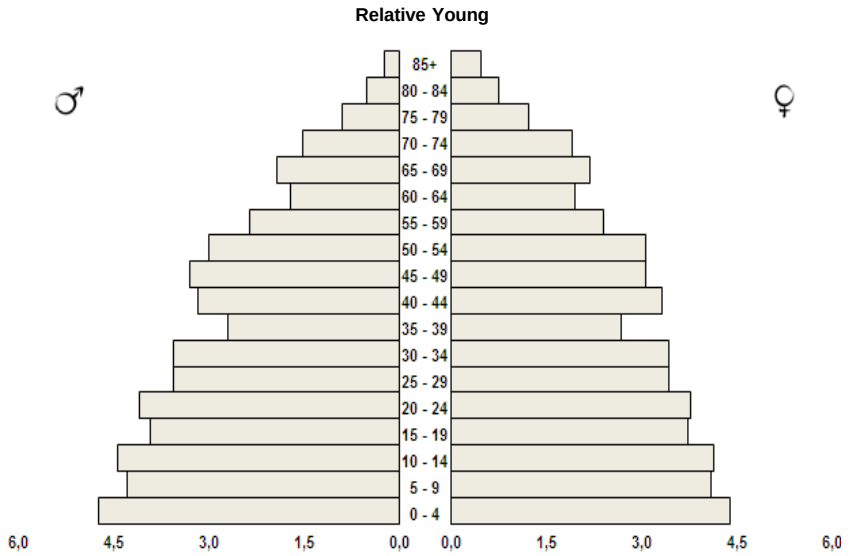
Cluster 3: Old, narrow base, 2 out of 10 belong to 0-14 age group, 2 out of 10 belong to 65+ age group, Δ(mean – median) 0,31 years – Two geographical clusters east-west.

Cluster 4: Old, narrow base, 2 out of 10 belong to 0-14 age group, 2 out of 10 belong to 65+ age group, Δ(mean – median) 0,64 years – Dispersed mostly located to northern Greece.

PACE OF AGEING PROCESS (1)

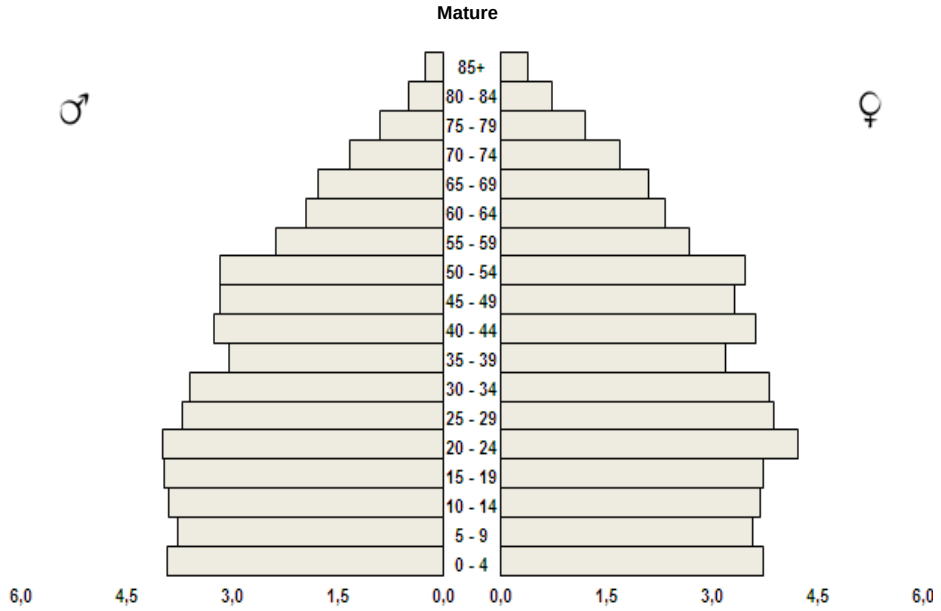
In order to examine the pace of population ageing among regions, a second typology for the whole period (1981-2001) based upon the aforementioned yearly profiles were derived. The results of our typology revealed the following types of age structure:

(i)Relative young: Despite the median age which reaches 31 years, this type of pyramid can be characterized as relative young, met only in 1981 (Cluster 1). Presenting a “triangle” shape, its broad base indicates high proportions of young ages (0-14) which result from high fertility rates while the death rates remain quite high. Deficits at ages 35-39 and 60-64 could be considered as World War II and I losses respectively,



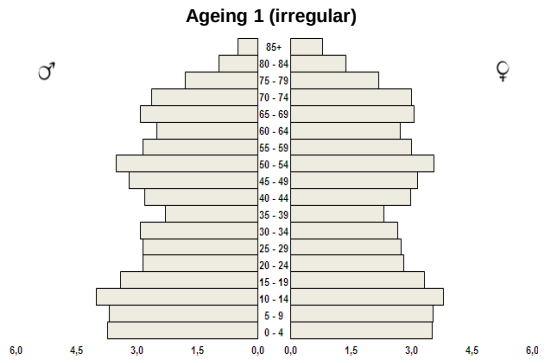
PACE OF AGEING PROCESS (2)

(ii) Mature: Turning gradually from triangular-shaped to rectangular-shaped, this type of pyramid corresponds to a mature structure with median age at 32,62 years old and ageing index 47,95% while birth and death rates start declining (1981: Cluster 2, 1991: Cluster 1) .
Additionally, mature irregular pyramid structure with median age close to 34 years old and ageing index 53,34%, appeared only in 1981, presents deficits in ages 15-39 due to war losses in one hand and migration flows on the other. Slight surpluses in ages 40-54 arose from the postwar high birth rates (1981: Cluster 3 & 4).



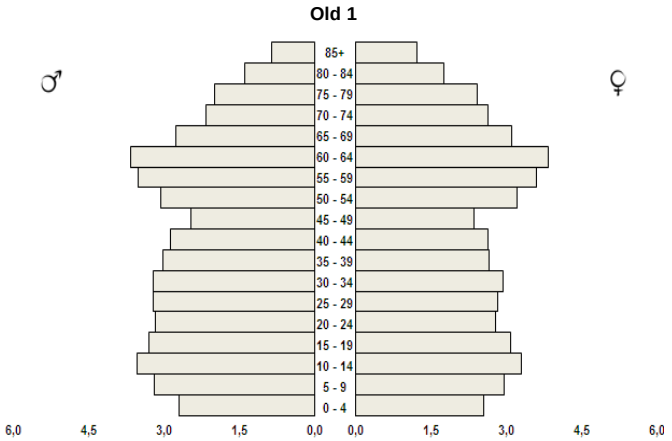
PACE OF AGEING PROCESS (3)

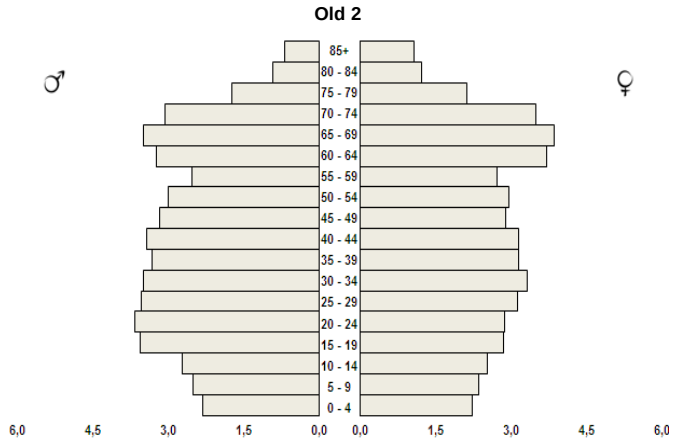
(iii) Ageing: Restrained proportions of young age groups (0-14), amplified distribution at middle ages combined with 15%-20% of 65+, compose rapid ageing structure as older cohorts age (move upwards) effected by higher life expectancy and low death rates. Weighted to the 15-44 age groups, Ageing 1 structure presents a median age of 36 years and ageing index 69,18% (1991: Cluster 2,3 & 4) , while in Ageing 2 (2001: Cluster 1 & 2), the median age reaches ≈38 years but ageing index climbs up to 103% as the number of population above 65 years exceeds the number of 0-14. Losses in 45-49 age group for Ageing 1 (in 1991) and respectively in 55-59 group for Ageing 2 (in 2001) reflect the consequences of World War II. Ageing 1 irregular (1981: Cluster 5) constitutes a distinct profile, in which deficits in 15-49 age groups due to war and migration losses, contribute in median age elevation to 39,48 years while ageing index reaches 86,29%.



PACE OF AGEING PROCESS (4)

(iv) Old: With median age above 40 years, the old structured v-shaped pyramids reveal low death rates and long-run persistence of low birth rates which led to percentages of 65+ over 20% and ageing indexes above 100. In Old 1 structure (1991: Cluster 5) the significant proportions of 50-69, figuring higher fertility between the two world wars, puts the weight on the top of the pyramid followed by the lower fertility of next decades, hence the deficit at the 20-49 age groups. Insisting low fertility and low death rates in Old 2 (2001: Cluster 3 & 4) noting an ageing index of 147,89%, while the surplus of male population observed in ages 15-19 is attributed to the presence of military.



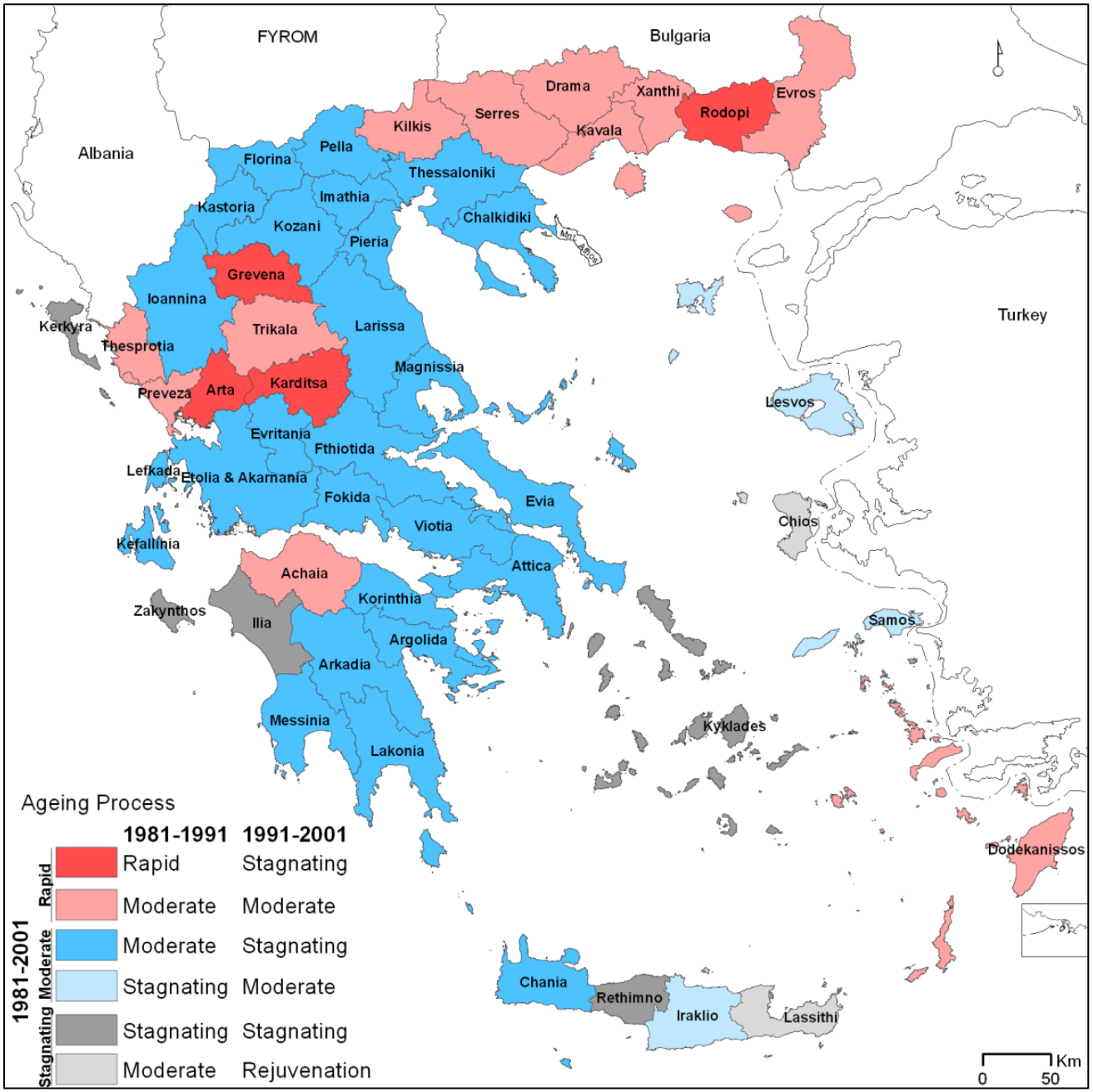


Typology of ageing process

Departments	Age structure (profile)			Pace of ageing process		
	1981	1991	2001	1981-1991 (1)	1991-2001 (2)	1981-2001 (3)= (1)+(2)
Rodopi	*Relative young*	*Ageing 1*	*Ageing 2*	**Rapid**	**Stagnating**	**Rapid**
Arta Karditsa Grevena	*Mature (irregular)*	*Old 1*	*Old 2*	**Rapid**	**Stagnating**	
Thesprotia Preveza Trikala Drama Kavala Kilkis Serres Evros	*Mature (irregular)*	*Ageing 1*	*Old 2*	**Moderate**	**Moderate**	**Rapid**
Achaia Xanthi Dodekanissos	*Relative young*	*Mature*	*Ageing 2*	**Moderate**	**Moderate**	
Kastoria Kozani Etolia & Viotia Evia Fthiotida Argolida Korinthia Ioannina Larissa Magnissia Imathia Pella Pieria Florina Chalkidiki Chania	*Mature (irregular)*	*Ageing 1*	*Ageing 2*	**Moderate**	**Stagnating**	**Moderate**
Thessaloniki Attica	*Mature*	*Ageing 1*	*Ageing 2*	**Moderate**	**Stagnating**	
Evritania Fokida Arkadia Lakonia Messinia Kefallinia Lefkada	*Ageing 1 (irregular)*	*Old 1*	*Old 2*	**Moderate**	**Stagnating**	
Iraklio	*Mature (irregular)*	*Mature*	*Ageing 2*	**Stagnating**	**Moderate**	**Moderate**
Lesvos Samos	*Ageing 1 (irregular)*	*Ageing 1*	*Old 2*	**Stagnating**	**Moderate**	
Ilia Zakynthos Kerkyra Kyklades Rethimno	*Ageing 1 (irregular)*	*Ageing 1*	*Ageing 2*	**Stagnating**	**Stagnating**	**Stagnating**
Chios Lassithi	*Ageing 1 (irregular)*	*Old 1*	*Ageing 2*	**Moderate**	**Rejuvenation**	**Stagnating**

Notes: Regarding ageing process, Rapid = 2, Moderate=1, Stagnated= 0, Rejuvination= -1.

Source: Authors' calculations



ΠΑΝΕΠΙΣΤΗΜΙΟ ΘΕΣΣΑΛΙΑΣ

Τέλος Ενότητας