ΠΑΝΕΠΙΣΤΗΜΙΟ ΘΕΣΣΑΛΙΑΣ

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Démographie spatiale/Spatial Demography

Session 5: Case study

Michail Agorastakis
Department of Planning & Regional Development

Ευρωπαϊκή Ένωση
Ευρωπαϊκό Κοινωνικό Ταμείο
ΕΠΙΧΕΙΡΗΣΙΑΚΟ ΠΡΟΓΡΑΜΜΑ
ΕΚΠΑΙΔΕΥΣΗ ΚΑΙ ΔΙΑ ΒΙΟΥ ΜΑΘΗΣΗ
επένδυση στην κοινωνία της γνώσης
ΥΠΟΥΡΓΕΙΟ ΠΑΙΔΕΙΑΣ & ΘΡΗΣΚΕΥΜΑΤΩΝ, ΠΟΛΙΤΙΣΜΟΥ & ΑΘΛΗΤΙΣΜΟΥ
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ΕΥΡΩΠΑΪΚΟ ΚΟΙΝΩΝΙΚΟ ΤΑΜΕΙΟ
Με τη συγχρηματοδότηση της Ελλάδας και της Ευρωπαϊκής Ένωσης

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Population redistribution in western Balkans: Crises and population mobility (1989-2001). The case of Albania (A review of methodology and main conclusions)

Michail Agorastakis
University of Thessaly, Department of Planning & Regional Development,
Laboratory of Demographic and Social Analyses (LDSA)
* magorast@prd.uth.gr

Outline

- Introduction
- Data Sources
- Definitions of population sub-groups
- Origin/Destination Matrix
- Formulation of migration rates
- Spatial focusing in the migration system
- Age-specific migration rates
- Impact of internal migration on the geography of cohort fertility
- Discussion

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Data Sources (1)

Population and Housing Census 2001 (INSTAT):

§ Census available in individual records (i.e. 3.069.275 records)

§ Building, Dwelling, Household and individual questionnaires

§ Administrative structure of 12 Prefectures, 36 Districts, 65 Municipalities, 309 Communes (374 communes), 3051 villages

§ No post-enumeration survey, quality "fairly good" due to questions raised regarding completeness, failure to capture external migration and Albanian household structure. Age declaration good (Lerch & Wanner (2008), author's interviews with local experts in 2006)

Population and Housing Census 1989 (INSTAT):

§ Census available in individual records in magnetic tape recordings (i.e. 3.182.417 records)

§Restored data: Village of residence in 1989, age and sex

§ Administrative structure of 26 Districts, 2848 villages

§ Completeness and declaration of age "very good", an under-enumeration of women is probable (INSTAT & UNFPA (1999) & author's interviews with local experts in 2006)

Vital statistics data from INSTAT were not available in the administrative levels of interest.

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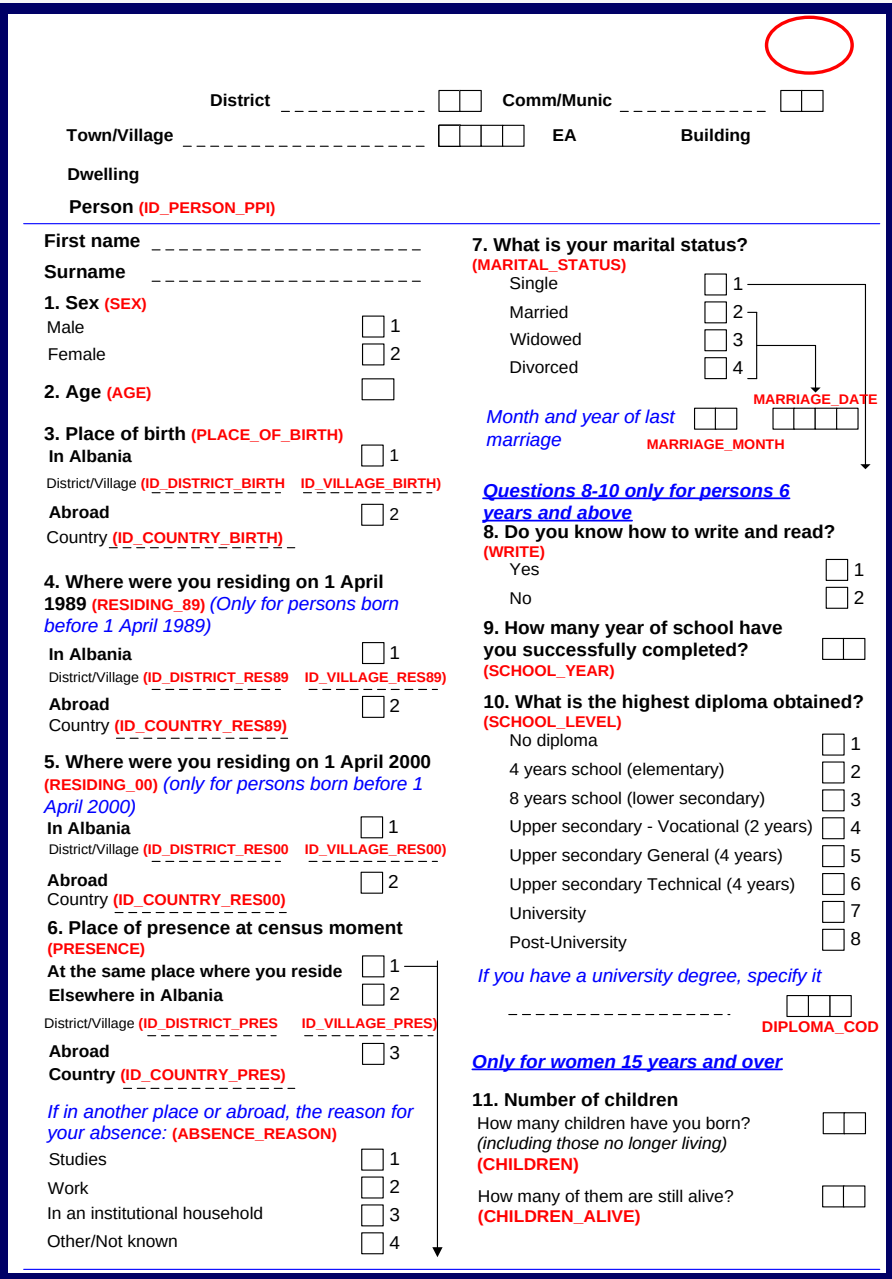
Data Sources (2)



District _____ ☐☐ Comm/Munic _____ ☐☐

Town/Village _____ ☐☐☐☐ EA Building

Dwelling

Person (ID_PERSON_PPI)

First name _____

Surname _____

1. Sex (SEX)

Male ☐ 1

Female ☐ 2

2. Age (AGE) ☐

3. Place of birth (PLACE_OF_BIRTH)

In Albania ☐ 1

District/Village (ID_DISTRICT_BIRTH) (ID_VILLAGE_BIRTH)

Abroad ☐ 2

Country (ID_COUNTRY_BIRTH)

4. Where were you residing on 1 April 1989 (RESIDING_89) *(Only for persons born before 1 April 1989)*

In Albania ☐ 1

District/Village (ID_DISTRICT_RES89) (ID_VILLAGE_RES89)

Abroad ☐ 2

Country (ID_COUNTRY_RES89)

5. Where were you residing on 1 April 2000 (RESIDING_00) *(only for persons born before 1 April 2000)*

In Albania ☐ 1

District/Village (ID_DISTRICT_RES00) (ID_VILLAGE_RES00)

Abroad ☐ 2

Country (ID_COUNTRY_RES00)

6. Place of presence at census moment (PRESENCE)

At the same place where you reside ☐ 1

Elsewhere in Albania ☐ 2

District/Village (ID_DISTRICT_PRES) (ID_VILLAGE_PRES)

Abroad ☐ 3

Country (ID_COUNTRY_PRES)

If in another place or abroad, the reason for your absence: (ABSENCE_REASON)

Studies ☐ 1

Work ☐ 2

In an institutional household ☐ 3

Other/Not known ☐ 4

7. What is your marital status? (MARITAL_STATUS)

Single ☐ 1

Married ☐ 2

Widowed ☐ 3

Divorced ☐ 4

Month and year of last marriage ☐☐ (MARRIAGE_MONTH) ☐☐☐☐ (MARRIAGE_DATE)

Questions 8-10 only for persons 6 years and above

8. Do you know how to write and read? (WRITE)

Yes ☐ 1

No ☐ 2

9. How many year of school have you successfully completed? (SCHOOL_YEAR) ☐☐

10. What is the highest diploma obtained? (SCHOOL_LEVEL)

No diploma ☐ 1

4 years school (elementary) ☐ 2

8 years school (lower secondary) ☐ 3

Upper secondary - Vocational (2 years) ☐ 4

Upper secondary General (4 years) ☐ 5

Upper secondary Technical (4 years) ☐ 6

University ☐ 7

Post-University ☐ 8

If you have a university degree, specify it

_____ ☐☐☐ (DIPLOMA_COD)

Only for women 15 years and over

11. Number of children

How many children have you born? *(including those no longer living)* (CHILDREN) ☐☐

How many of them are still alive? (CHILDREN_ALIVE) ☐☐

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Definition of population sub-groups (2001)

§ We considered a spatial demographic accounting exercise between two areas based on the examples of Wunsch & Termote (1978: 197) and Rees (1979), by introducing migration (internal and external); on the hypothesis of one migration per individual (change in the place of residence 1989-2001). Although migration is treated as a "noise" factor (closed populations); in this case we treat the effects of fertility, mortality and external migration on population change as "noise". Subsequently, based on the place of residence in 1989 we derive the following population sub-groups in 2001

Group 1: Total number of individuals that resided in the same District/Commune in 1989 and 2001 (Stable population)

Group 2a: Total number of individuals residing in a District/Commune in 2001 but not residing there in 1989 (Total Inflow – Internal migrants)

Group 2b: Total number of individuals residing in a District in 1989 but not residing there in 2001 (Total Outflow-Internal migrants)

Alive in 1989 & 2001 (aged >=12 in 2001)

Group 3: Total number of individuals recorded as being abroad in 1989 or 2001

Group 4: Total number of individuals aged < 12 years in 2001

Group 5: Total number of individuals with unknown or not available District of residence either in 1989, or in 2001

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Definition of population sub-groups (1989)

§ Therefore the total population of 1989 could be expressed by using 2001 population sub-groups:

$$Pop.1989_i = \sum [(Group1)_i, (Group2b)_i, (P_R)_i]$$

where:

Group 1: Total number of individuals that resided in the same District/Commune in 1989 and 2001 (Stable population)

Group 2b: Total number of individuals residing in a District in 1989 but not residing there in 2001 (Total Outflow)

P_R: the share of population which includes the individuals that died in the period 1989-2001 and the individuals who fuelled external migration

and i = 1st, 2nd,…, Xth district/commune

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Modified Areal Unit Problem (MAUP)

As the next step the different spatial scales - *Modified Areal Unit Problem* (*Openshaw*, *1983*) - regarding the censuses had to be addressed due to:

§ successive administrative changes (6, between 1989-2001),

§ establishment of commune level, not present in 1989,

§ the absence of commune level in the 2001 questionnaire regarding the place of residence in 1989 (District & village).

Data transformation to 2001 administrative structure

Village (1989) → Village (2001) → Commune (2001) → District (2001)

Data transformation to 1989 District level

District (1989) ← Village (1989) ← Village (2001)

Sources: Printed maps obtained by Albanian Military Geographical Service & National Geospatial-Intelligence Agency, GEOnet Names Server (GNS) (http://earth-info.nga.mil/)

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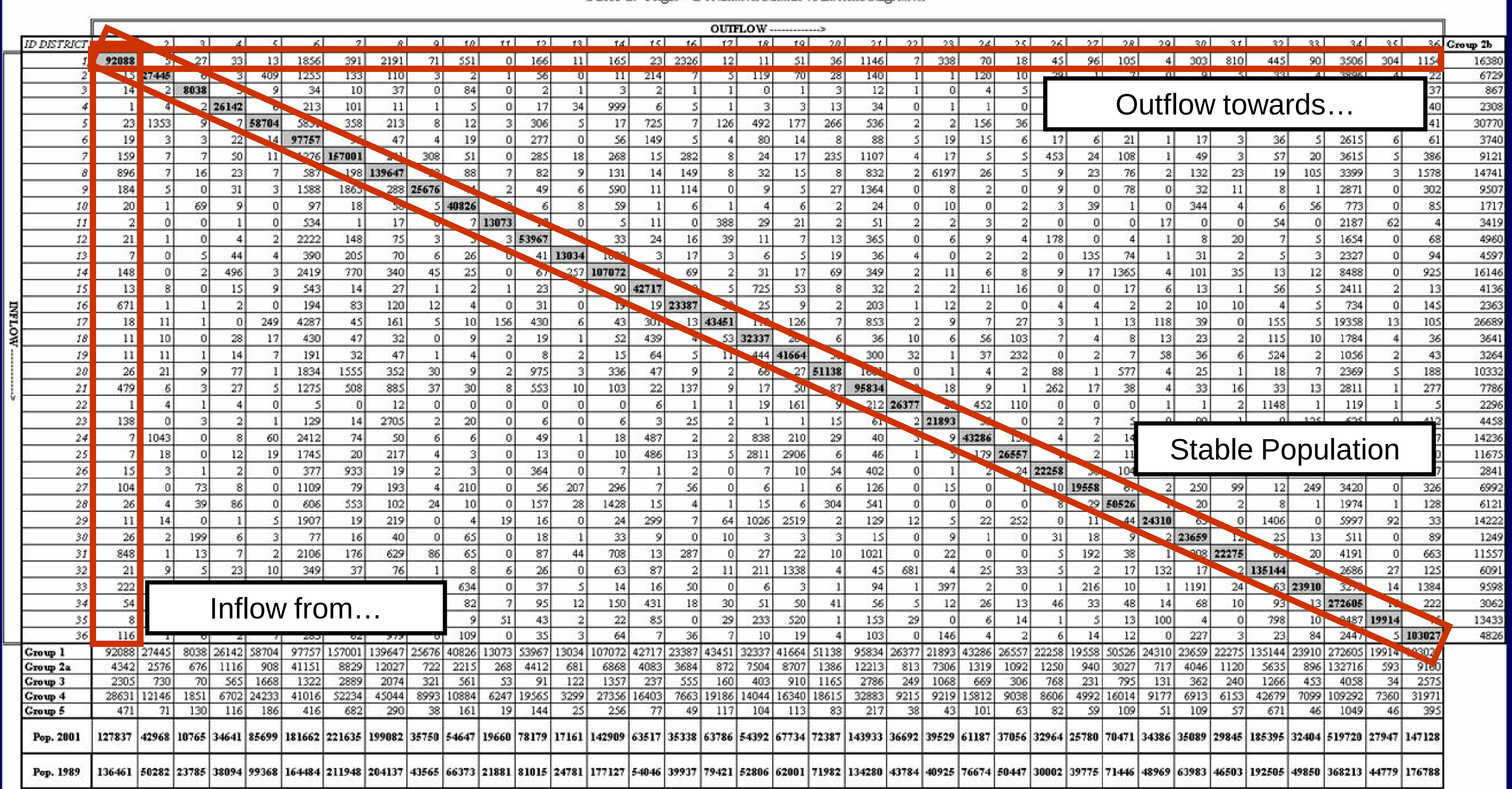
Origin/Destination Matrix

Table 1: Origin – Destination Matrix of Internal Migration



Source: Population & Housing Census, 1989, 2001, individually processed

48 (36x36 for Districts & 374x374 for Communes) matrices in the form of a database using cross-tabulation in SPSS® and Microsoft Excel®.

(total/male/female disaggregated by 5-year age groups (12-14, 15-19…85+))

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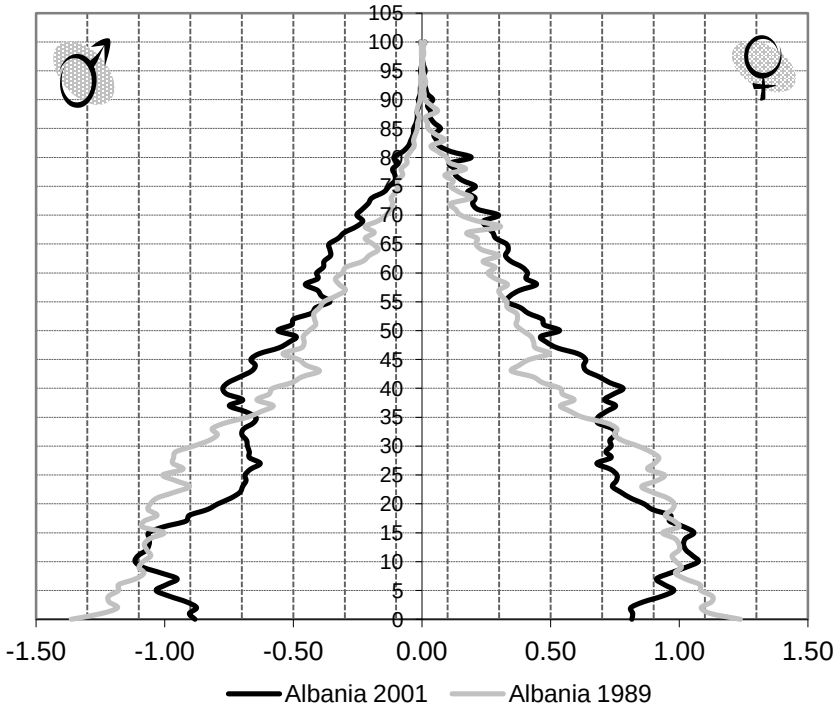
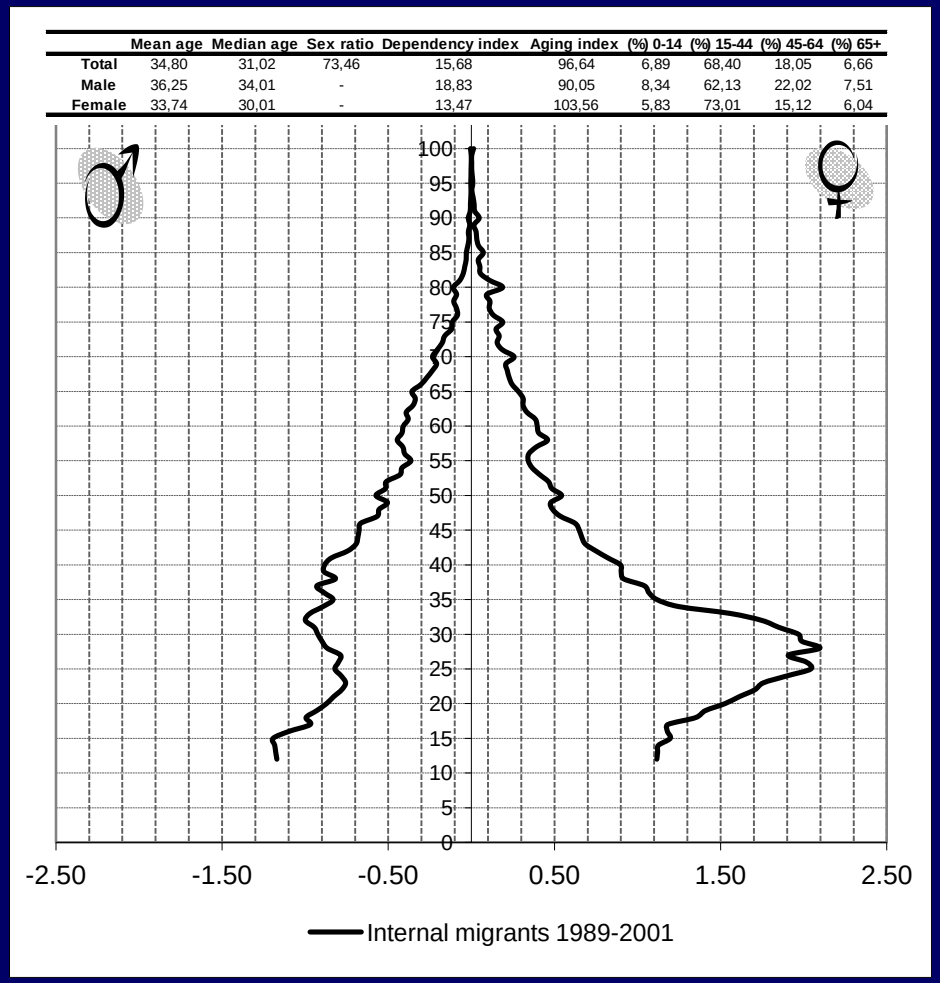
Total & internal migrant population structure

		Mean age	Median age	Sex ratio	Dependency index	Aging index	(%) 0-14	(%) 15-44	(%) 45-64	(%) 65+
1989	Total	26,66	23,03	106,07	62,12	16,05	33,02	47,42	14,27	5,30
	Male	26,15	23,01	-	61,03	13,35	33,44	47,78	14,32	4,46
	Female	27,19	23,04	-	63,30	18,99	32,58	47,03	14,21	6,19
2001	Total	30,18	27,02	99,45	58,29	25,74	29,29	45,32	17,86	7,54
	Male	29,90	27,01	-	59,26	23,43	30,15	44,41	18,38	7,06
	Female	30,47	27,03	-	57,33	28,18	28,43	46,22	17,34	8,01
Δ(1989,2001)	Total	-3,53	-3,99	6,62	3,84	-9,69	3,73	2,10	-3,59	-2,24
	Male	-3,75	-4,00	-	1,77	-10,08	3,29	3,36	-4,05	-2,60
	Female	-3,27	-3,99	-	5,97	-9,19	4,15	0,81	-3,14	-1,82



295.870 & 441.845 internal migrants (district/commune level)

	Mean age	Median age	Sex ratio	Dependency index	Aging index	(%) 0-14	(%) 15-44	(%) 45-64	(%) 65+
Total	34,80	31,02	73,46	15,68	96,64	6,89	68,40	18,05	6,66
Male	36,25	34,01	-	18,83	90,05	8,34	62,13	22,02	7,51
Female	33,74	30,01	-	13,47	103,56	5,83	73,01	15,12	6,04



Source: INSTAT, Population Census 1989,2001; author's calculations

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Formulation of migration rates

The issue of the denominator in migration rates is well discussed in the literature.

(see Thomlinson (1962), Hamilton (1965 & 1966), Shryock et all. (1976: 375), Courgeau (1975)).

Based on the sub-groups of population we defined population-at-risk per direction:

§ inflow population-at-risk (receiving) = (Stable + Inflow)

§ outflow population-at-risk (sending) = (Stable + Outflow)

Subsequently, we have:

§ inflow migration rate = $(\text{Group2a})_i \Big/ \sum [(Group1)_i, (Group2a)_i]$

an estimation of the share of population of each District/Commune in 2001 that was alive during 1989-2001, did not experience any form of external migration and resided in a different District/Commune in 1989

§ outflow migration rate = $(\text{Group2b})_i \Big/ \sum [(Group1)_i, (\text{Group2b})_i]$

an estimation of the share of population of each District/Commune in 1989, that was alive during 1989-2001, did not experience any form of external migration and resided in a different District/Commune in 2001

Attributes: Comparable rates, consideration of origin and destination areas, can be disaggregated to age-sex specific rates.

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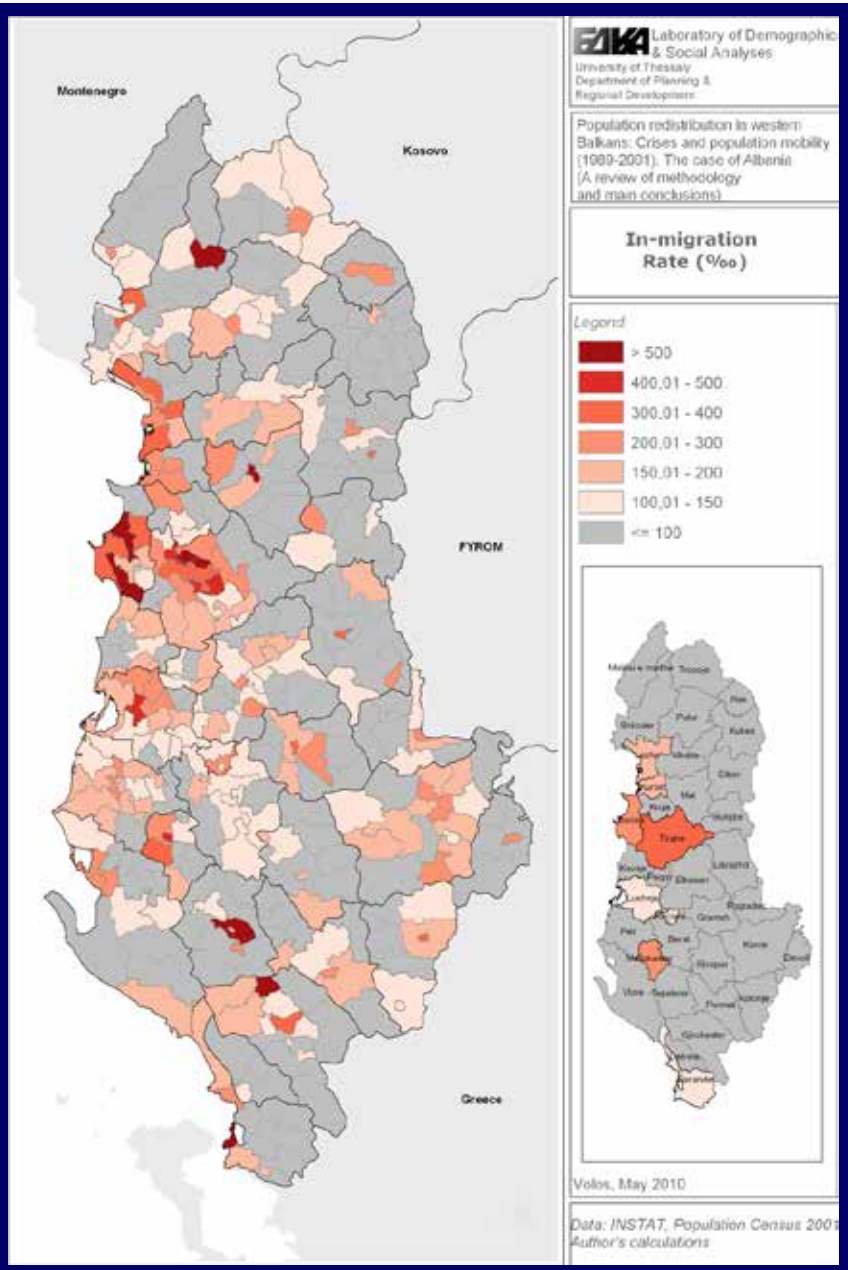
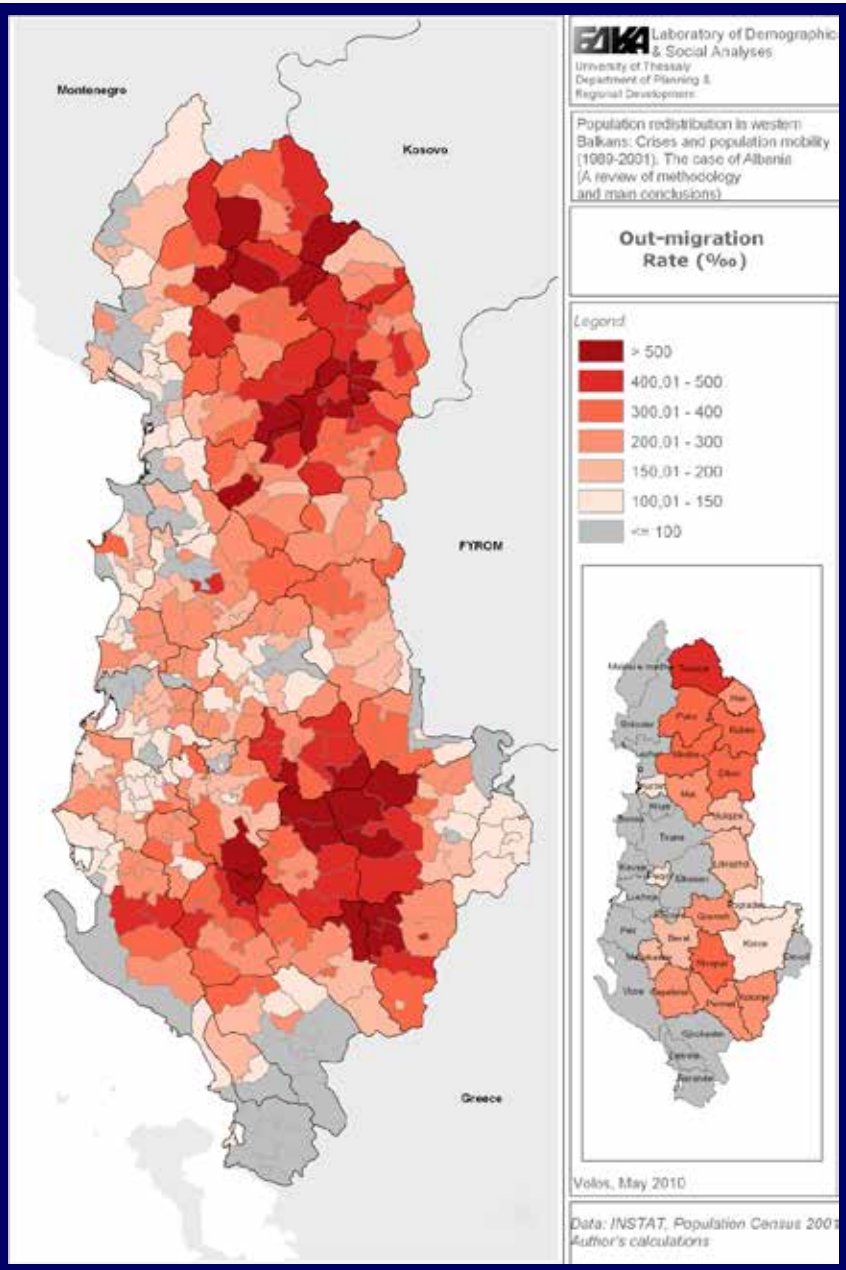
Selected rates & indices





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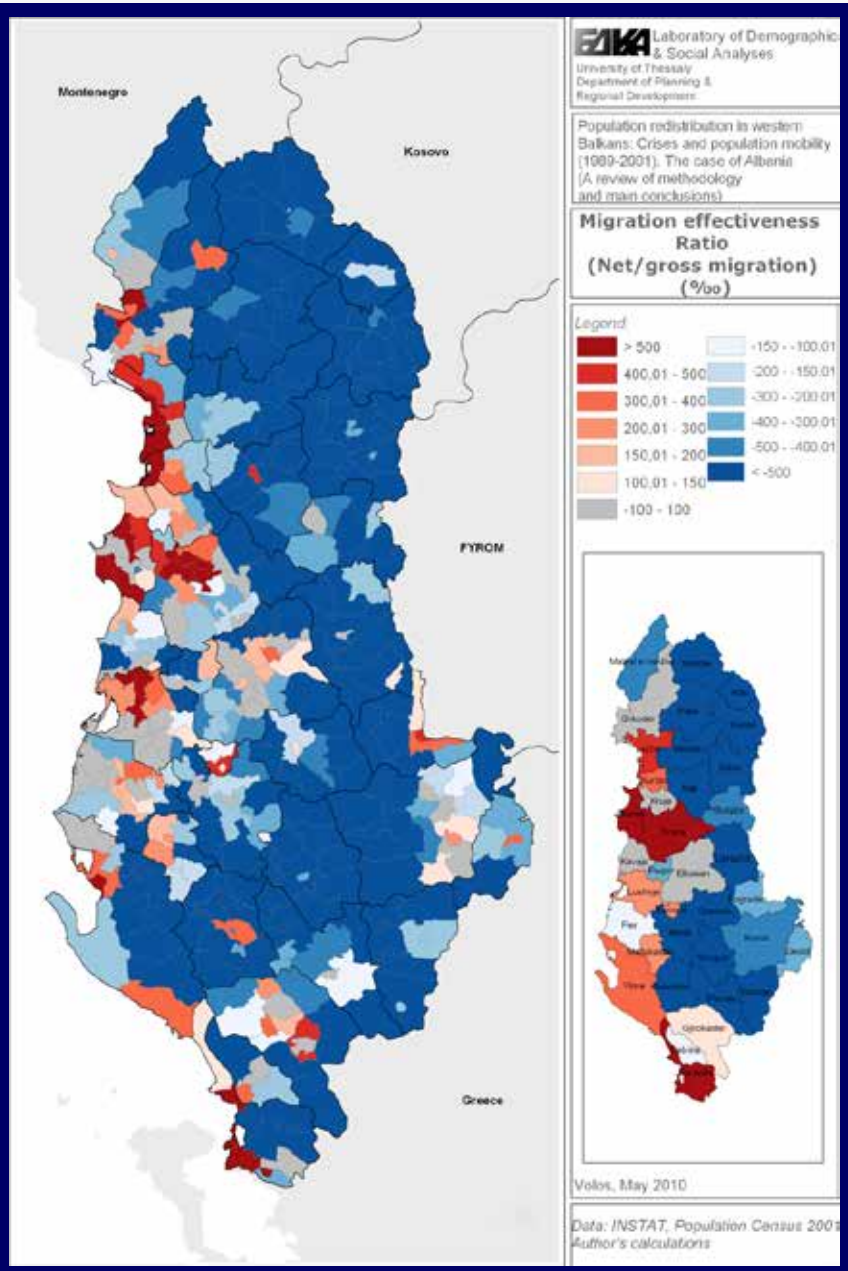
Selected rates & indices



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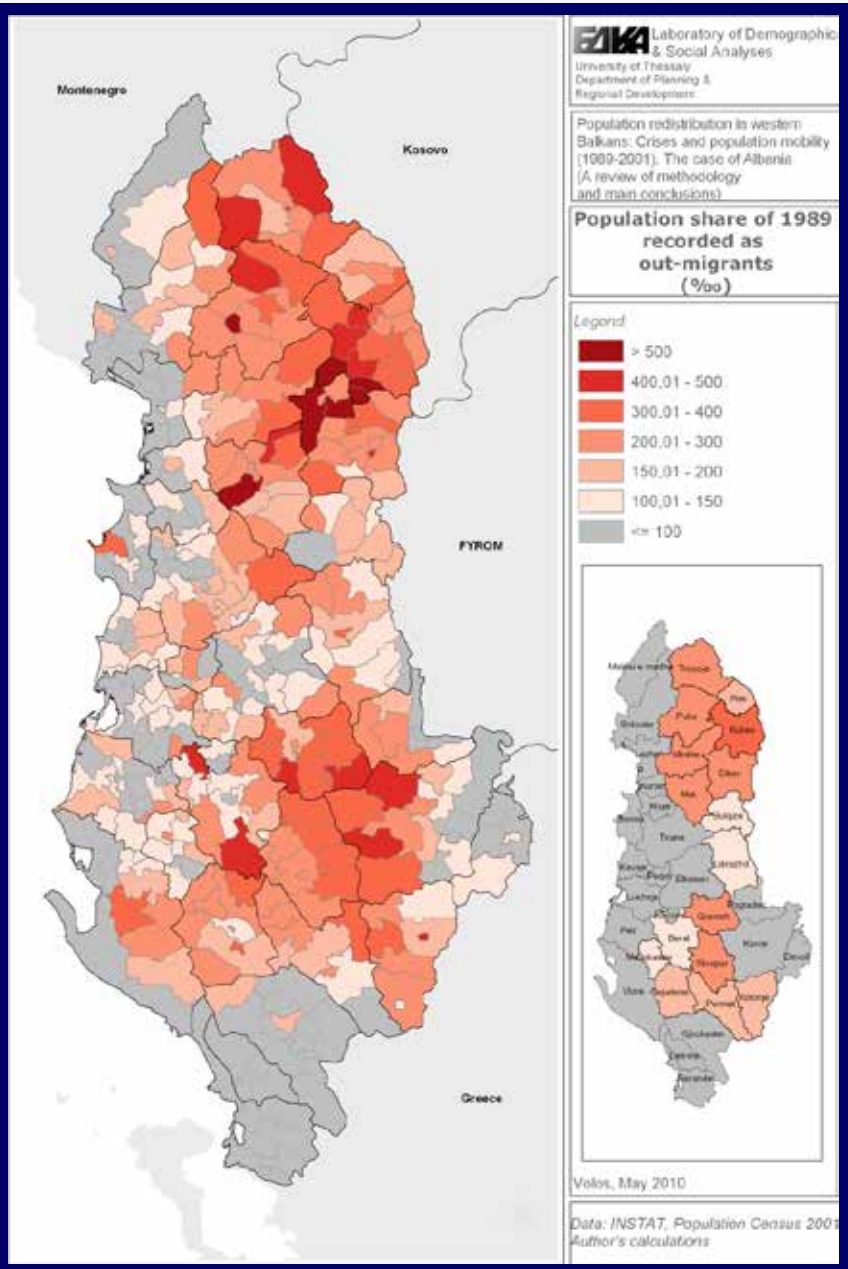
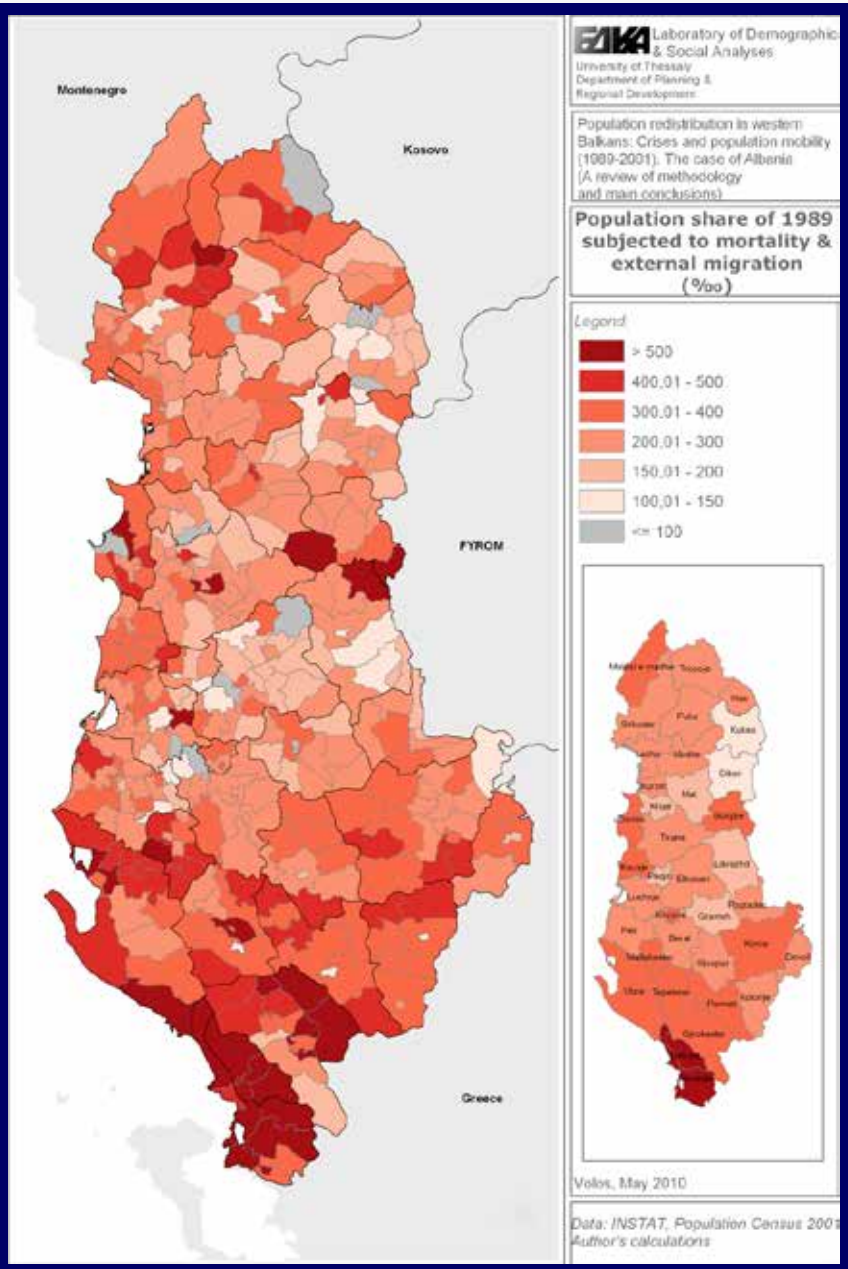
Selected rates & indices





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Spatial focusing in the migration system

Plane & Mulligan (1996) define a measure for spatial focusing;

". . . to mean the inequality that exists in the relative volumes of a set of origin-destination-specific migration flows. A high degree of spatial focusing means that most in-migrants are moving selectively to only a few destinations and that most out-migrants are leaving only a few origins. A low degree of spatial focusing means that migrants are moving among all possible origins and destinations in relatively equal numbers."

We adopt their approach and use the Gini Index as a summary measure of spatial focusing. Specifically, we calculated:

Rows (outflow) Gini Index

$$ {}^{T}G_{R\bullet}(t) = \frac{\sum_{i}\sum_{j\neq i}\sum_{h\neq i,j}\left|m_{ij} - m_{ih}\right|}{2n(n-1)T} $$

Columns (inflow) Gini Index

$$ {}^{T}G_{\bullet C}(t) = \frac{\sum_{j}\sum_{i\neq j}\sum_{g\neq j,i}\left|m_{ij} - m_{gj}\right|}{2n(n-1)T} $$

Out (Row) migration field Gini Index

$$ {}^{O}G_{k\bullet}(t) = \frac{\sum_{j\neq k}\sum_{h\neq k}\left|m_{kj} - m_{kh}\right|}{2(n-1)^2\sum_{j\neq k} m_{kj}/(n-1)} = \frac{\sum_{j\neq k}\sum_{h\neq k}\left|m_{kj} - m_{kh}\right|}{2(n-1)O_k} $$

In (column) migration field Gini Index

$$ {}^{I}G_{\bullet k}(t) = \frac{\sum_{i\neq k}\sum_{g\neq k}\left|m_{ik} - m_{gk}\right|}{2(n-1)^2\sum_{i\neq k} m_{ik}/(n-1)} = \frac{\sum_{i\neq k}\sum_{g\neq k}\left|m_{ik} - m_{gk}\right|}{2(n-1)I_k} $$

Source: Plane & Mulligan 1996

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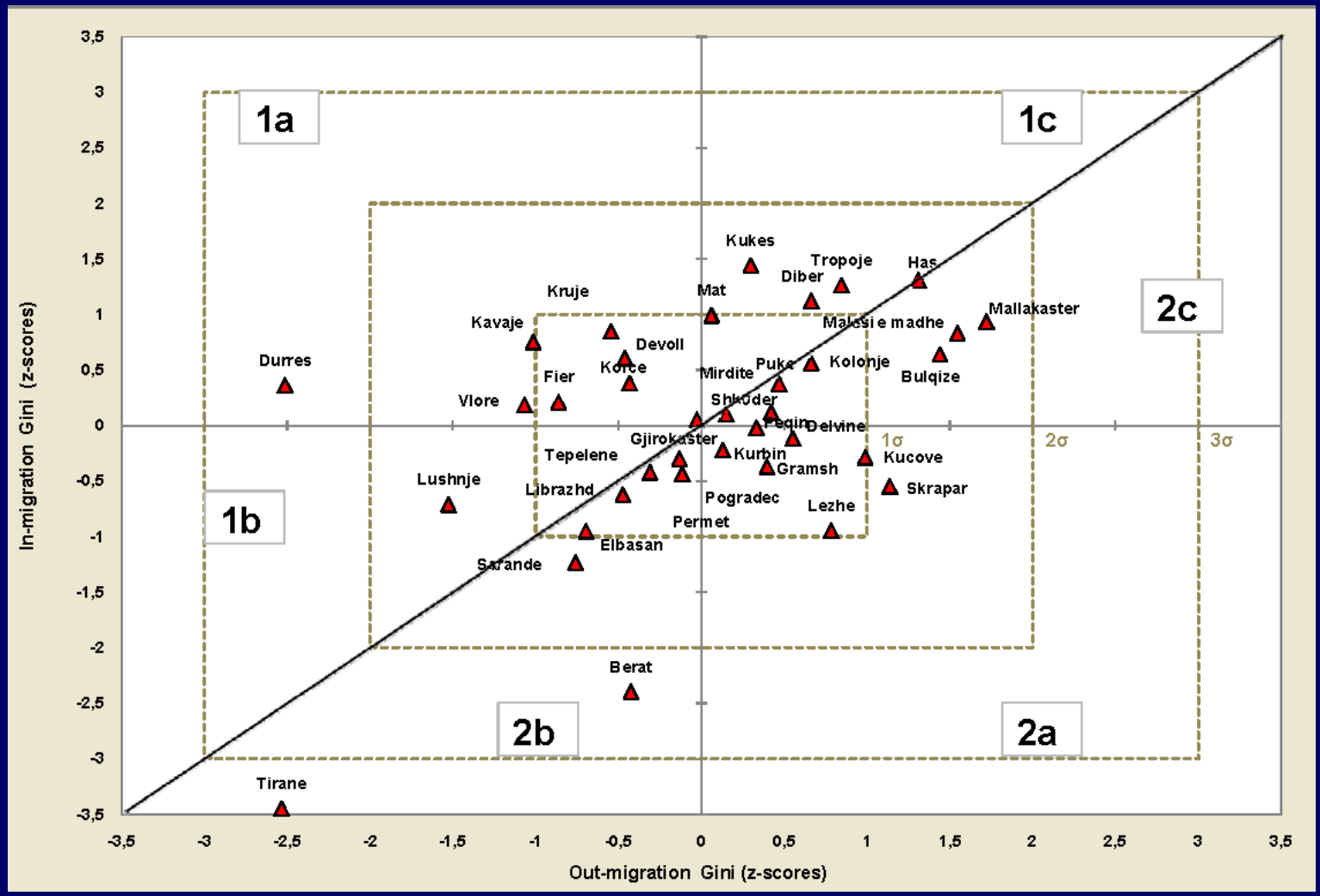
Spatial focusing in the migration system

Rogers & Raymer (1998) corroborating Plane & Mulligan (1996) derived a typology that characterized the redistributive role of US states to the national migration system in a migration field diagram by plotting the z-scores of in and out migration field Gini indices.

District level



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Spatial focusing in the migration system

Group 1a: Greater in inflows than in outflows

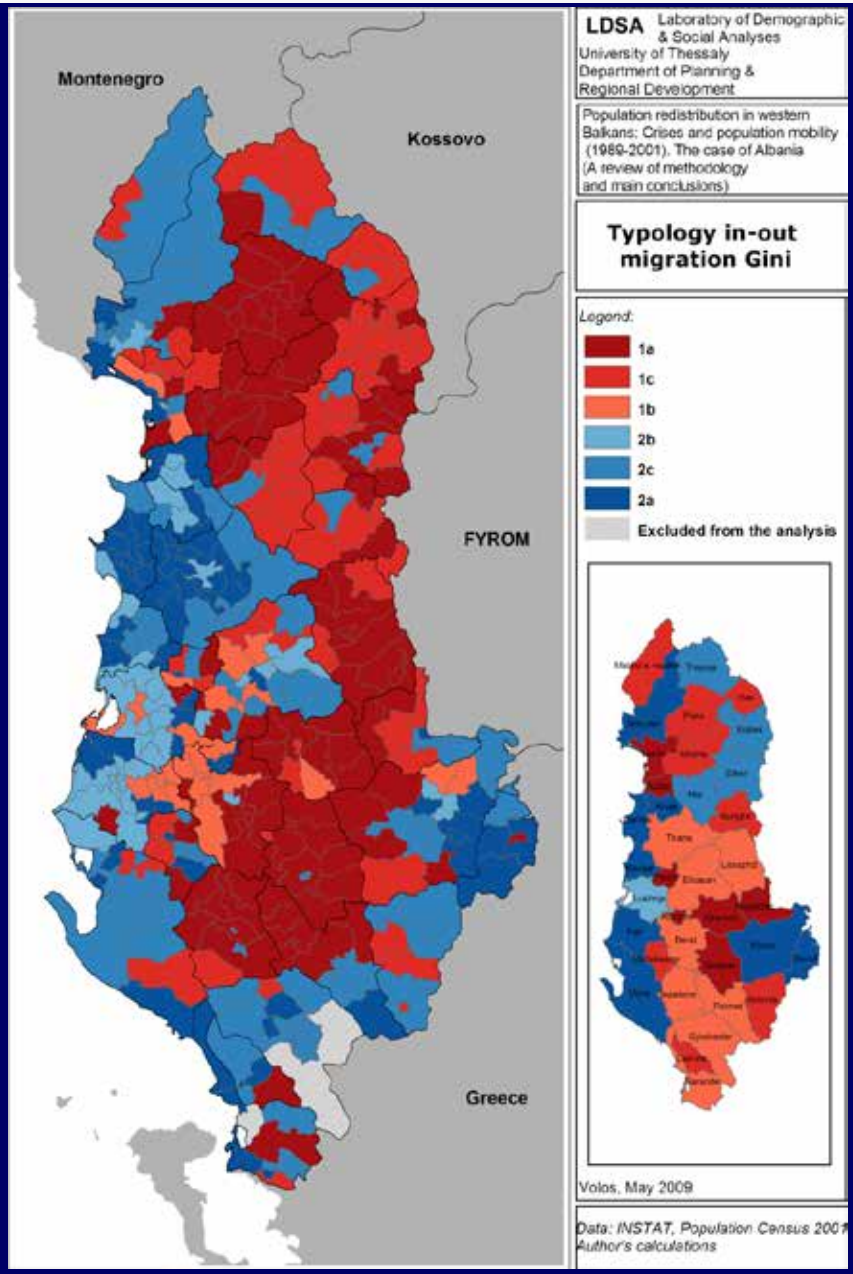
Group 1c: intense relationships with limited communes, low participation in the system

Group 1b: low degree of spatial focusing, great participation to the system

Group 2a: Greater in outflows than in inflows

Group 2c: intense relationships with limited communes, low participation in the system

Group 2b: low degree of spatial focusing, great participation to the system



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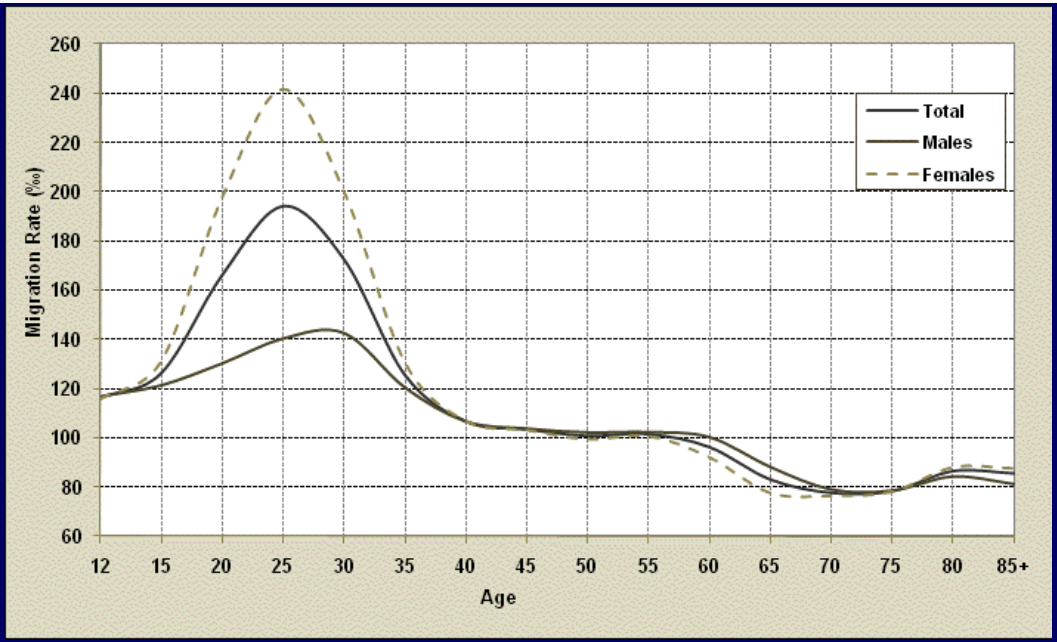
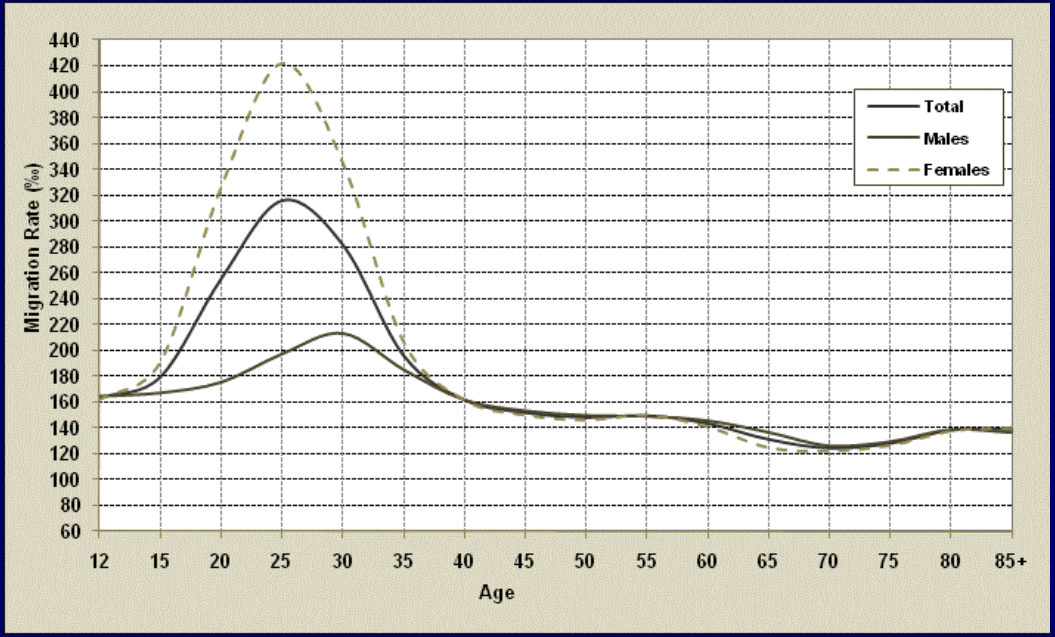
Age-specific migration rates

Districts



Communes



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Spatial variation in age schedules

Age selectivity in migration (both directions) varied spatially. In order to capture spatial variation, we derived model age schedules in respect to the national schedule.

Firstly, we calculated confidence intervals for ages (denominator *fixed*, numerator *a Poisson random variable*) in national level and selected the maximum range (widest); secondly, the differences with the national age schedule was derived and a typology was derived by applying the methodology derived in Bertin (1981)

>= 100	50 - 99,9	10- 49,9	9,9 - - 9,9	-49,9 - -10	-99,9 - -50	<= -100

AGE SPECIFIC IN MIGRATION RATE

District/Age	12-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85+
Berat	93,12	96,01	94,16	85,82	84,74	83,43	81,08	83,13	77,34	78,10	67,95	62,51	51,05	50,87	66,41	54,49
Bulqize	49,08	44,01	65,61	64,17	53,94	32,17	27,07	32,03	41,24	53,80	45,13	14,00	28,92	-0,92	29,47	56,37
Delvine	27,31	45,48	34,06	13,41	57,64	19,27	30,75	29,94	44,06	63,46	54,16	53,15	44,87	62,23	37,52	43,23
Devoll	94,71	99,17	99,88	70,83	52,35	75,07	86,32	87,01	85,94	88,35	86,95	81,61	72,31	71,25	80,45	85,78
Diber	111,73	117,61	135,96	154,83	143,31	115,49	98,16	96,36	96,32	93,78	89,78	77,56	77,06	73,87	81,58	75,26
Durres	-192,78	-208,66	-245,54	-222,55	-200,42	-169,81	-143,99	-133,83	-126,16	-134,36	-118,55	-106,86	-86,09	-113,54	-139,85	-148,41
Elbasan	76,98	83,95	97,67	106,65	87,78	73,41	69,07	67,08	66,44	64,01	55,78	40,93	28,78	32,18	40,49	39,27
Fier	50,47	50,77	48,55	45,54	49,22	52,13	48,31	44,71	48,98	46,84	46,07	31,66	34,41	38,14	33,53	33,37
Gramsh	102,64	110,47	120,09	133,20	122,35	92,89	88,45	88,41	87,44	92,01	83,02	71,17	70,75	60,68	86,70	75,03
Gjirokaster	72,41	80,20	85,13	98,41	87,86	75,64	66,97	68,26	58,90	57,77	66,75	60,07	52,09	51,05	42,70	49,31
Has	111,45	114,48	130,35	141,54	133,88	109,02	95,28	93,70	94,17	96,55	94,40	66,03	77,86	63,90	86,70	85,78
Kavaje	51,46	47,41	49,32	27,70	41,93	55,02	48,70	56,90	54,63	55,47	49,87	44,06	43,84	49,79	42,69	39,12
Kolonje	77,93	95,43	73,98	51,66	51,33	72,34	79,79	84,11	76,54	76,82	69,92	69,32	66,49	43,01	80,92	65,16
Korce	60,38	66,39	70,65	76,04	75,44	70,48	63,40	60,34	57,07	60,75	56,42	48,90	48,81	51,12	52,55	46,57
Kruje	43,44	42,43	36,56	42,80	53,04	52,03	46,68	36,35	42,80	44,27	41,47	12,09	26,26	35,94	34,30	46,57
Kucove	20,48	8,28	-37,74	-71,60	-76,34	9,68	8,19	31,04	22,44	-5,89	-6,71	-9,63	-3,54	5,85	-16,39	10,20
Kukes	103,74	114,69	137,95	158,64	141,22	109,17	88,37	90,75	86,05	89,28	83,40	74,22	63,97	67,60	71,40	66,02
Kurbin	-56,08	-77,82	-93,81	-80,68	-75,50	-47,16	-50,90	-20,24	-31,11	-36,29	-18,41	-58,25	-35,87	-49,66	-19,58	-26,58
Lezhe	-61,06	-60,74	-67,17	-74,85	-62,21	-53,44	-27,19	-24,32	-25,81	-13,23	-6,07	-21,88	-23,56	-10,30	-27,84	5,58
Librazhd	101,75	108,36	126,68	143,13	124,86	101,42	89,06	83,86	84,90	90,84	77,57	69,12	68,31	58,94	62,74	64,51
Lushnje	8,81	11,20	7,62	-10,34	4,70	32,30	25,32	26,50	28,99	21,68	16,63	19,22	22,81	9,28	16,42	19,01
Malesi e madhe	91,62	91,70	107,85	119,55	139,42	99,76	84,53	81,42	81,66	84,28	83,30	70,56	69,52	63,34	62,61	62,20
Mallakaster	-105,85	-105,19	-127,89	-147,45	-138,83	-130,38	-120,86	-127,26	-113,74	-86,78	-110,55	-118,62	-135,16	-103,11	-117,78	-140,46
Mat	90,89	94,70	128,38	146,62	131,31	98,36	83,87	76,05	76,80	83,82	80,70	70,46	65,27	56,97	67,84	66,55
Mirdite	99,71	108,75	106,33	89,42	80,74	86,42	83,66	83,49	92,14	84,81	85,60	72,89	70,58	59,68	67,41	57,13
Peqin	96,66	100,16	71,81	41,14	45,13	80,47	80,33	95,11	85,41	88,58	80,02	70,60	60,94	68,46	78,92	68,08
Permet	83,59	91,43	96,90	70,47	54,26	66,89	78,65	77,83	75,80	83,92	82,98	59,04	59,31	63,47	70,78	54,95
Pogradec	84,73	88,86	85,82	86,76	71,57	69,89	71,24	63,65	63,48	60,99	46,31	40,64	36,25	31,20	53,58	66,17
Puke	111,38	111,63	110,48	100,94	113,41	112,20	99,75	95,94	92,72	96,74	91,59	76,40	72,48	75,32	79,88	81,47
Sarande	-50,09	-23,28	-34,79	-44,78	-56,81	-52,87	-29,28	-20,73	-14,46	8,33	10,65	23,29	13,93	4,08	4,91	23,00
Skrapar	87,87	98,19	86,56	97,52	89,64	78,54	76,83	68,38	62,90	62,20	60,77	57,09	49,91	42,78	61,78	45,24
Shkoder	76,75	82,47	112,61	127,84	114,67	86,21	74,54	78,94	73,49	74,02	68,33	57,72	51,05	58,03	54,89	49,65
Tepelene	95,53	108,10	89,08	84,43	90,26	90,38	84,00	87,85	93,71	86,38	80,37	75,79	65,68	70,86	67,04	67,67
Tirane	-233,89	-244,27	-242,67	-219,91	-205,32	-195,95	-186,48	-172,59	-173,65	-184,87	-170,40	-136,81	-129,59	-123,54	-178,51	-197,24
Tropoje	96,86	101,04	132,17	140,29	128,99	96,84	83,48	89,49	82,12	79,01	82,19	57,87	64,95	53,85	58,36	19,12
Vlore	47,95	43,47	52,27	51,13	56,96	47,08	39,55	29,15	29,55	27,53	37,99	37,27	33,11	35,50	43,06	35,28

AGE SPECIFIC IN MIGRATION RATE

District/Age	25-29	20-24	30-34	15-19	12-14	35-39	40-44	60-64	45-49	50-54	55-59	65-69	70-74	75-79	80-84	85+
Puke	110,48	100,94	113,41	111,63	111,38	112,20	99,75	95,94	92,72	96,74	91,59	76,40	72,48	75,32	79,88	81,47
Has	130,35	141,54	133,88	114,48	111,45	109,02	95,28	93,70	94,17	96,55	94,40	66,03	77,86	63,90	86,70	85,78
Diber	135,96	154,83	143,31	117,61	111,73	115,49	98,16	96,36	96,32	93,78	89,78	77,56	77,06	73,87	81,58	75,26
Kukes	137,95	158,64	141,22	114,69	103,74	109,17	88,37	90,75	86,05	89,28	83,40	74,22	63,97	67,60	71,40	66,02
Librazhd	126,68	143,13	124,86	108,36	101,75	101,42	89,06	83,86	84,90	90,84	77,57	69,12	68,31	58,94	62,74	64,51
Gramsh	120,09	133,20	122,35	110,47	102,64	92,89	88,45	88,41	87,44	92,01	83,02	71,17	70,75	60,68	86,70	75,03
Tropoje	132,17	140,29	128,99	101,04	96,86	96,84	83,48	89,49	82,12	79,01	82,19	57,87	64,95	53,85	58,36	19,12
Malesi e madhe	107,85	119,55	139,42	91,70	91,62	99,76	84,53	81,42	81,66	84,28	83,30	70,56	69,52	63,34	62,61	62,20
Mat	128,38	146,62	131,31	94,70	90,89	98,36	83,87	76,05	76,80	83,82	80,70	70,46	65,27	56,97	67,84	66,55
Shkoder	112,61	127,84	114,67	82,47	76,75	86,21	74,54	78,94	73,49	74,02	68,33	57,72	51,05	58,03	54,89	49,65
Mirdite	106,33	89,42	80,74	108,75	99,71	86,42	83,66	83,49	92,14	84,81	85,60	72,89	70,58	59,68	67,41	57,13
Tepelene	89,08	84,43	90,26	108,10	95,53	90,38	84,00	87,85	93,71	86,38	80,37	75,79	65,68	70,86	67,04	67,67
Devoll	99,88	70,83	52,35	99,17	94,71	75,07	86,32	87,01	85,94	88,35	86,95	81,61	72,31	71,25	80,45	85,78
Berat	94,16	85,82	84,74	96,01	93,12	83,43	81,08	83,13	77,34	78,10	67,95	62,51	51,05	50,87	66,41	54,49
Permet	96,90	70,47	54,26	91,43	83,59	66,89	78,65	77,83	75,80	83,92	82,98	59,04	59,31	63,47	70,78	54,95
Kolonje	73,98	51,66	51,33	95,43	77,93	72,34	79,79	84,11	76,54	76,82	69,92	69,32	66,49	43,01	80,92	65,16
Gjirokaster	85,13	98,41	87,86	80,20	72,41	75,64	66,97	68,26	58,90	57,77	66,75	60,07	52,09	51,05	42,70	49,31
Peqin	71,81	41,14	45,13	100,16	96,66	80,47	80,33	95,11	85,41	88,58	80,02	70,60	60,94	68,46	78,92	68,08
Skrapar	86,56	97,52	89,64	98,19	87,87	78,54	76,83	68,38	62,90	62,20	60,77	57,09	49,91	42,78	61,78	45,24
Pogradec	85,82	86,76	71,57	88,86	84,73	69,89	71,24	63,65	63,48	60,99	46,31	40,64	36,25	31,20	53,58	66,17
Korce	70,65	76,04	75,44	66,39	60,38	70,48	63,40	60,34	57,07	60,75	56,42	48,90	48,81	51,12	52,55	46,57
Elbasan	97,67	106,65	87,78	83,95	76,98	73,41	69,07	67,08	66,44	64,01	55,78	40,93	28,78	32,18	40,49	39,27
Bulqize	65,61	64,17	53,94	44,01	49,08	32,17	27,07	32,03	41,24	53,80	45,13	14,00	28,92	-0,92	29,47	56,37
Vlore	52,27	51,13	56,96	43,47	47,95	47,08	39,55	29,15	29,55	27,53	37,99	37,27	33,11	35,50	43,06	35,28
Delvine	34,06	13,41	57,64	45,48	27,31	19,27	30,75	29,94	44,06	63,46	54,16	53,15	44,87	62,23	37,52	43,23
Fier	48,55	45,54	49,22	50,77	50,47	52,13	48,31	44,71	48,98	46,84	46,07	31,66	34,41	38,14	33,53	33,37
Kavaje	49,32	27,70	41,93	47,41	51,46	55,02	48,70	56,90	54,63	55,47	49,87	44,06	43,84	49,79	42,69	39,12
Kruje	36,56	42,80	53,04	42,43	43,44	52,03	46,68	36,35	42,80	44,27	41,47	12,09	26,26	35,94	34,30	46,57
Lushnje	7,62	-10,34	4,70	11,20	8,81	32,30	25,32	26,50	28,99	21,68	16,63	19,22	22,81	9,28	16,42	19,01
Kucove	-37,74	-71,60	-76,34	8,28	20,48	9,68	8,19	31,04	22,44	-5,89	-6,71	-9,63	-3,54	5,85	-16,39	10,20
Sarande	-34,79	-44,78	-56,81	-23,28	-50,09	-52,87	-29,28	-20,73	-14,46	8,33	10,65	23,29	13,93	4,08	4,91	23,00
Kurbin	-93,81	-80,68	-75,50	-77,82	-56,08	-47,16	-50,90	-20,24	-31,11	-36,29	-18,41	-58,25	-35,87	-49,66	-19,58	-26,58
Lezhe	-67,17	-74,85	-62,21	-60,74	-61,06	-53,44	-27,19	-24,32	-25,81	-13,23	-6,07	-21,88	-23,56	-10,30	-27,84	5,58
Durres	-245,54	-222,55	-200,42	-208,66	-192,78	-169,81	-143,99	-133,83	-126,16	-134,36	-118,55	-106,86	-86,09	-113,54	-139,85	-148,41
Mallakaster	-127,89	-147,45	-138,83	-105,19	-105,85	-130,38	-120,86	-127,26	-113,74	-86,78	-110,55	-118,62	-135,16	-103,11	-117,78	-140,46
Tirane	-242,67	-219,91	-205,32	-244,27	-233,89	-195,95	-186,48	-172,59	-173,65	-184,87	-170,40	-136,81	-129,59	-123,54	-178,51	-197,24

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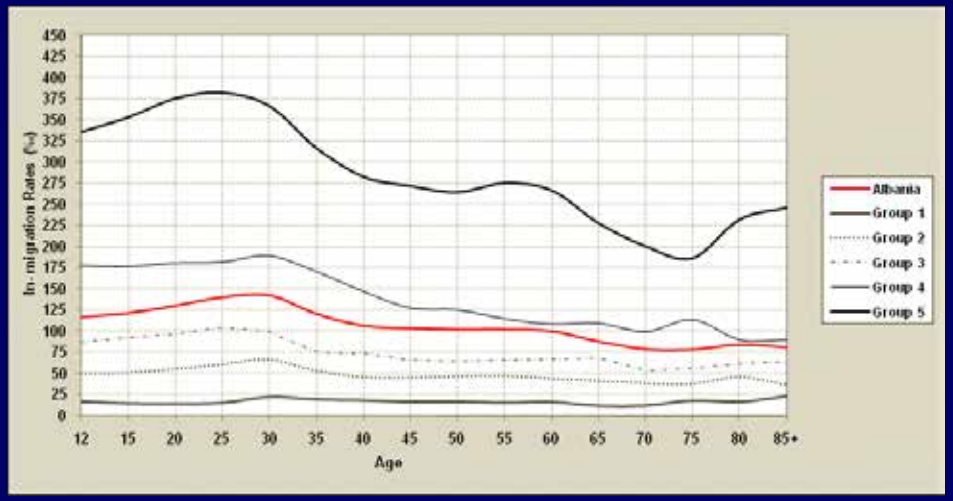
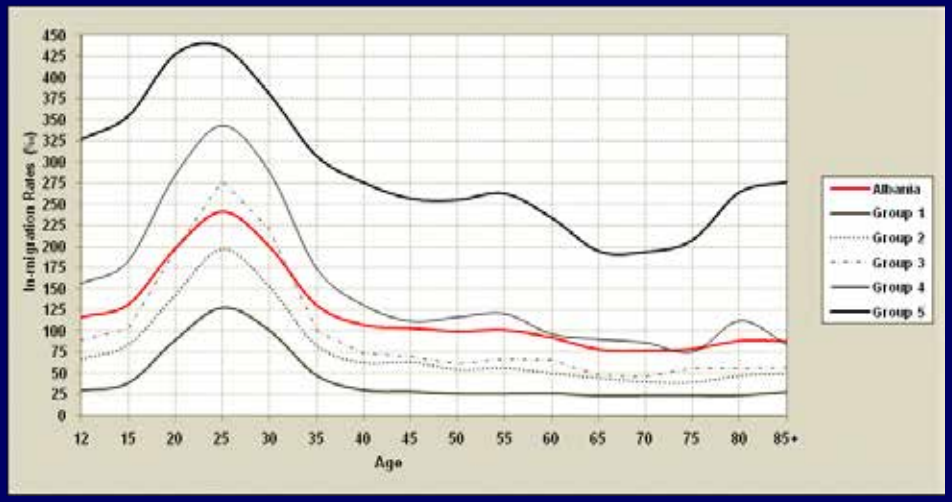
Results

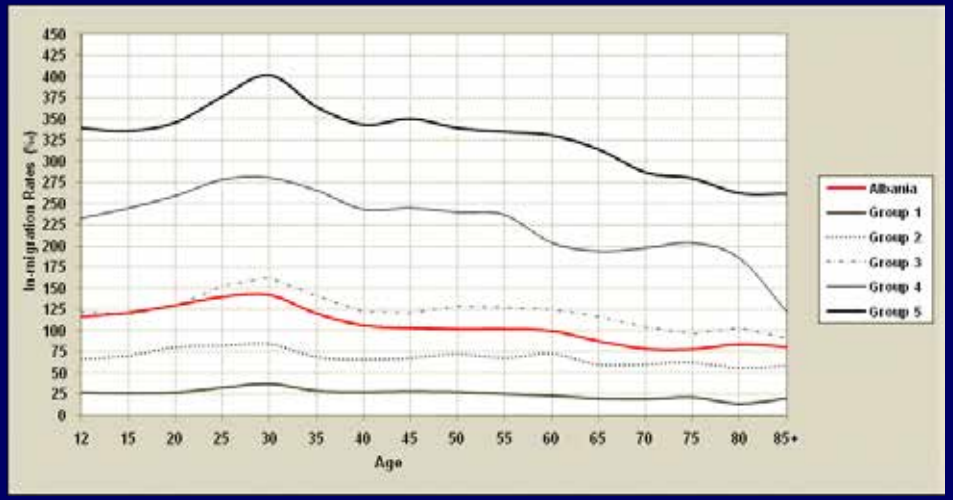
Inflow (males)



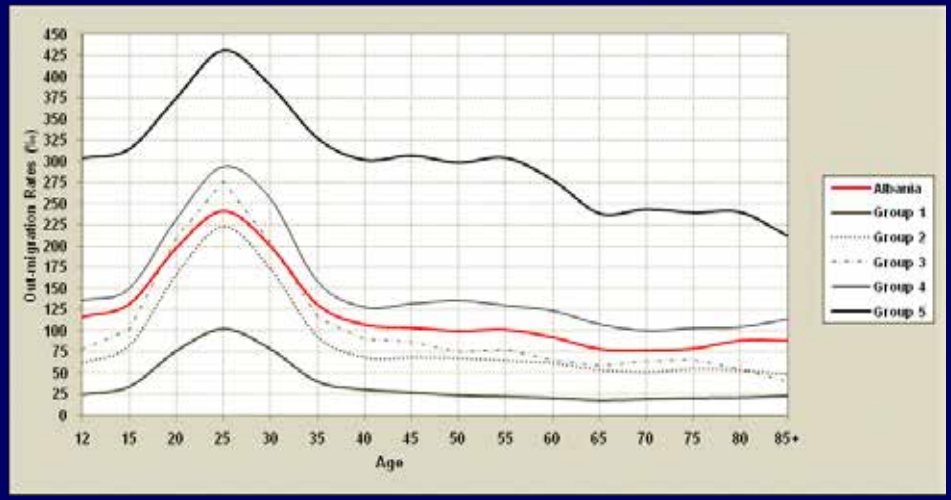
Inflow (females)



Outflow (males)



Outflow (females)



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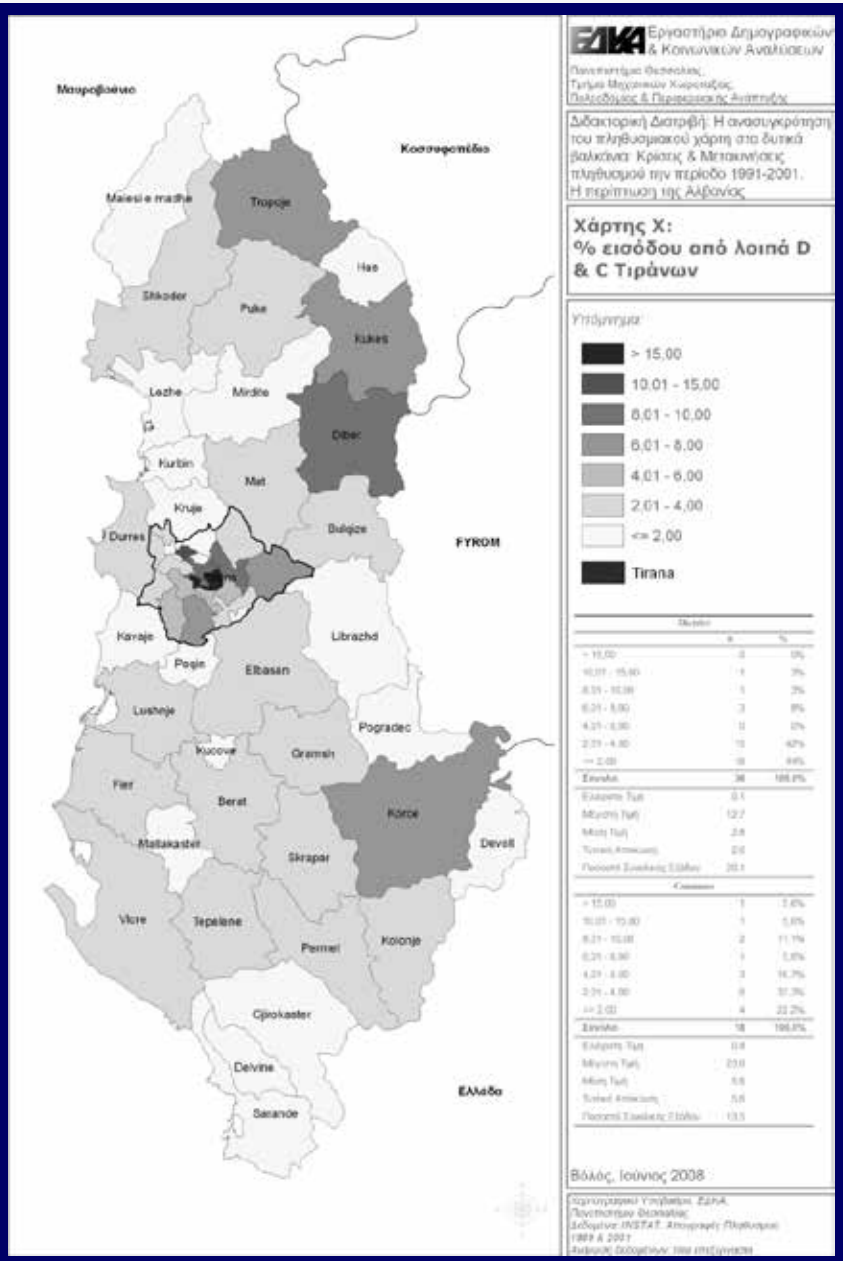
Discussion (1)



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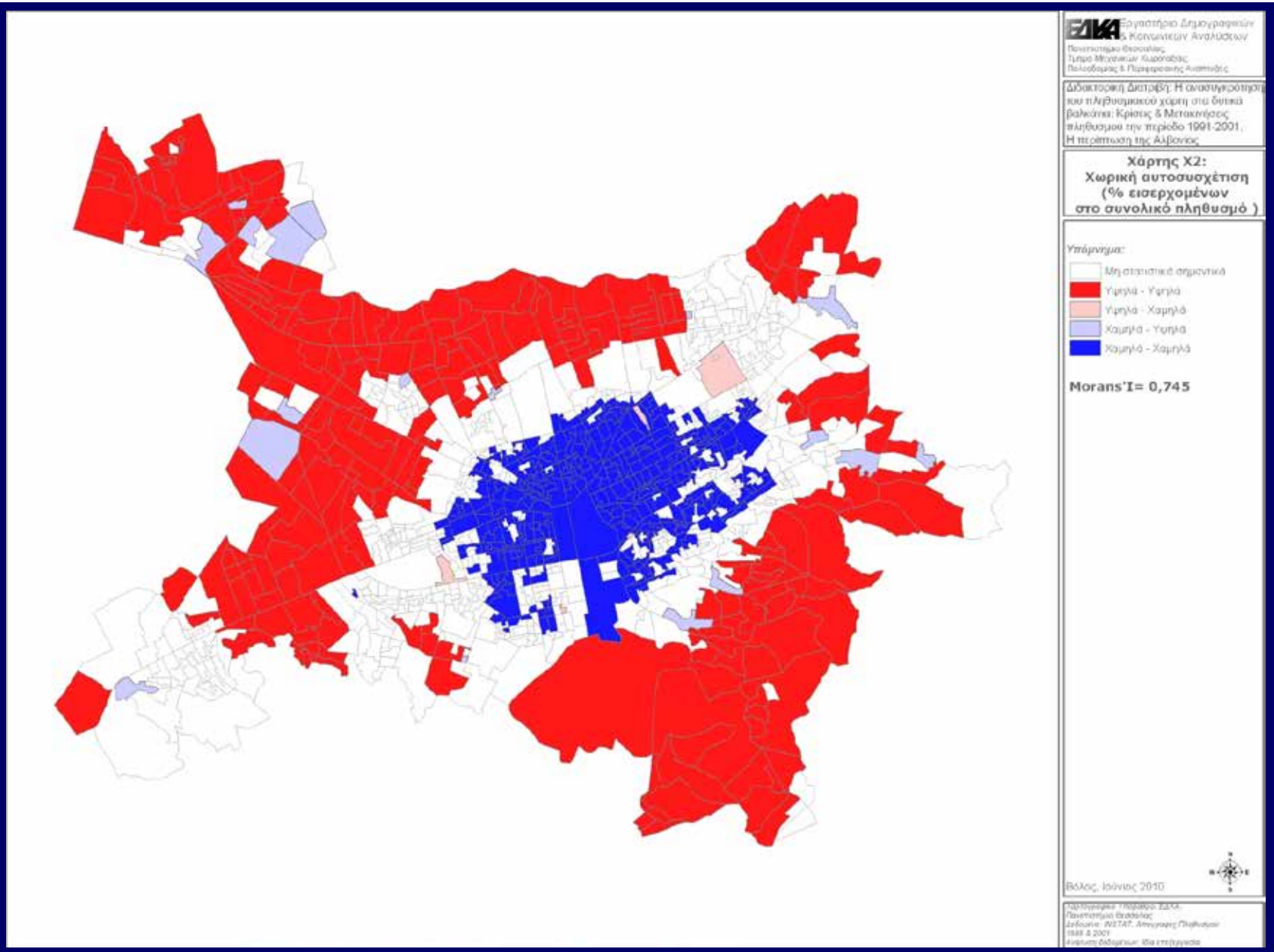
Discussion (2)



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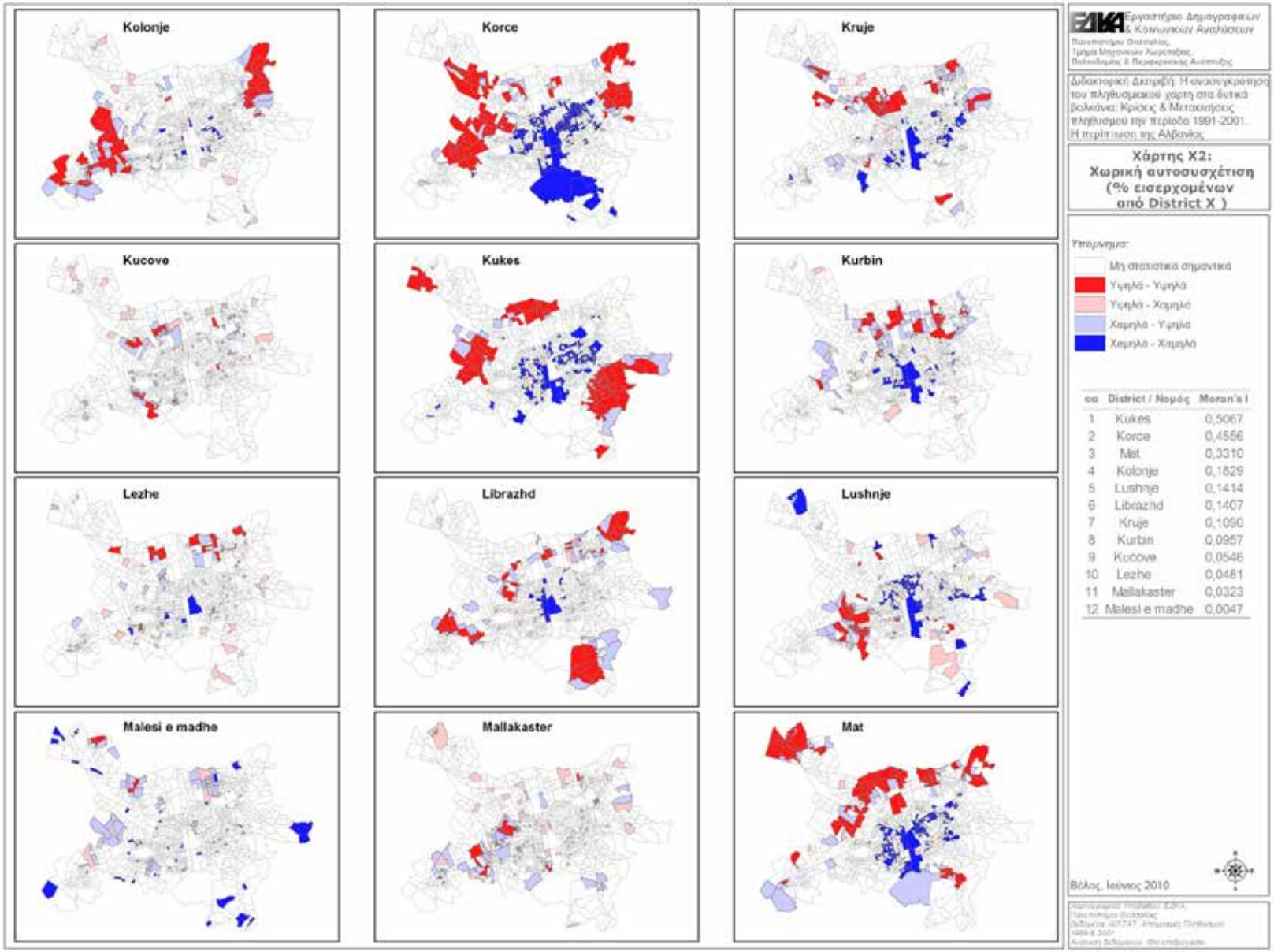
Discussion (3)



α/α	District / Νομός	Moran's I
1	Kukes	0,5067
2	Korce	0,4556
3	Mat	0,3310
4	Kolonje	0,1829
5	Lushnje	0,1414
6	Librazhd	0,1407
7	Kruje	0,1090
8	Kurbin	0,0957
9	Kucove	0,0546
10	Lezhe	0,0481
11	Mallakaster	0,0323
12	Malesi e madhe	0,0047

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ΠΑΝΕΠΙΣΤΗΜΙΟ ΘΕΣΣΑΛΙΑΣ

End of Session