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Territorial trends in Demography and Migration

**Open Workshop “Use of ESPON by European
Institutions and Commission Services”**

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Point of departure: A holistic approach including differing kinds of feedback processes

Based on ESPON 2006
Programme Action 1.1.4:
"THE SPATIAL EFFECTS OF
DEMOGRAPHIC TRENDS
AND MIGRATION"

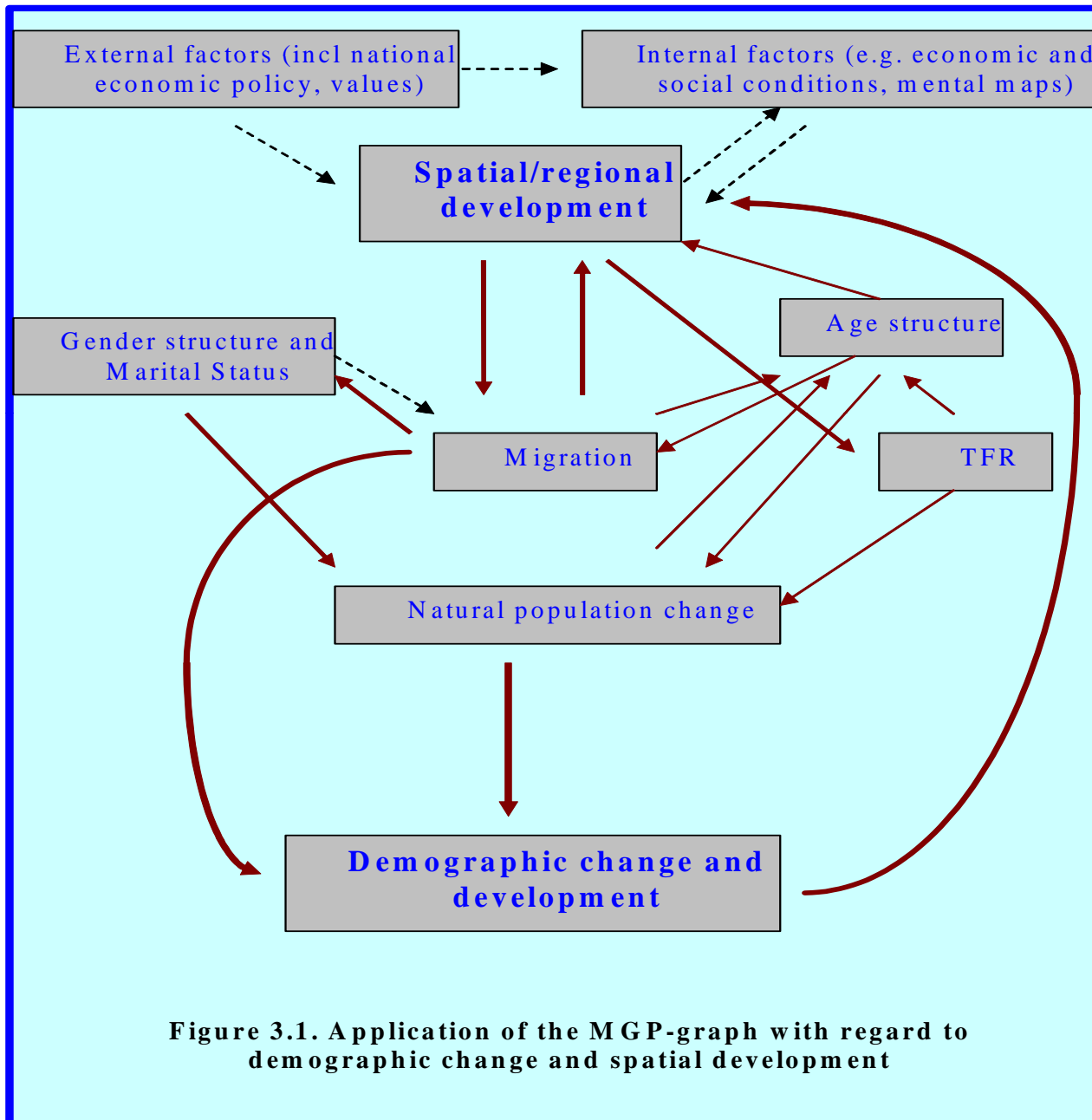
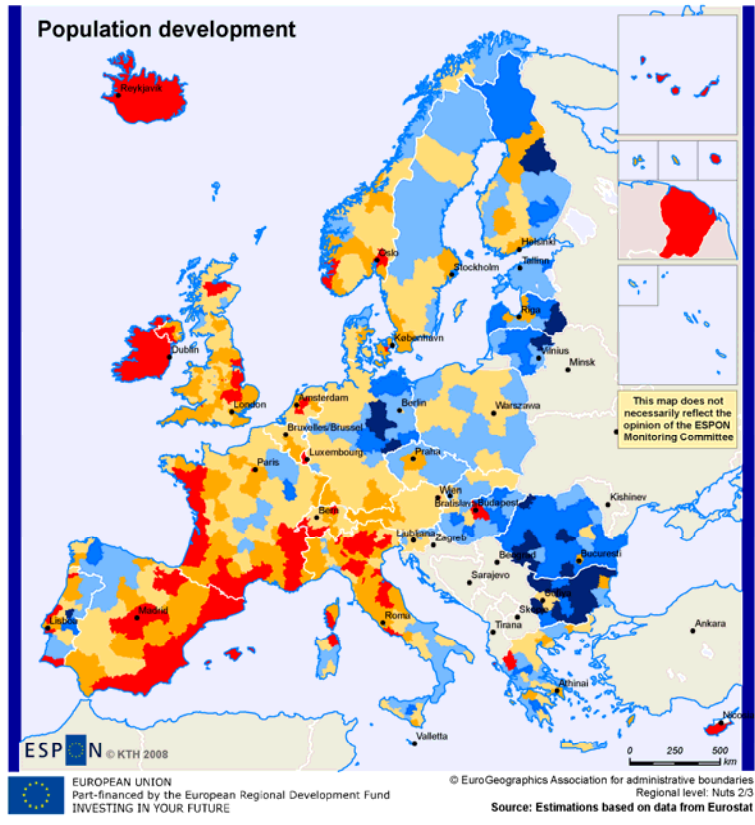
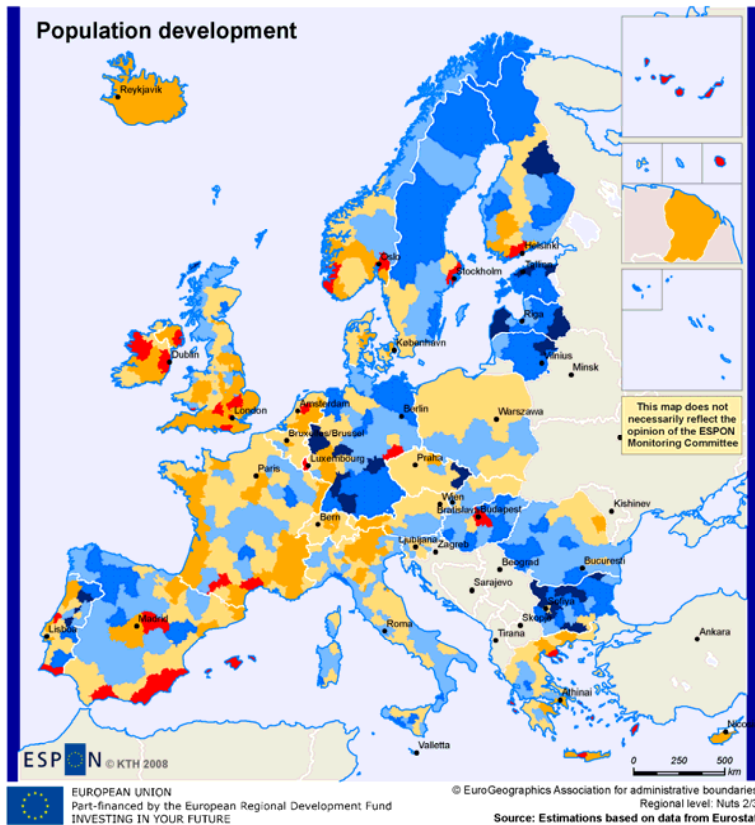


Figure 3.1. Application of the MGP-graph with regard to demographic change and spatial development

Population Development 1995-1999 and 2000-2005 (annual change, %)



Annual population development 1996-1999 (annual change, exp, base year 1995)

- 1 - max%
- 0.5 - 1%
- 0 - 0.5%
- 0.5 - 0%
- 1 - -0.5%
- 1 - min%
- no data

Annual population development 2001-2005 (annual change, exp, base year 2000)

Point of departure – the demographic equation:

$$\text{Total population change} = (\text{births} - \text{deaths}) + (\text{in-migration} - \text{out-migration}).$$

Expansive regions: Pentagon and Ireland, Metropolitan areas

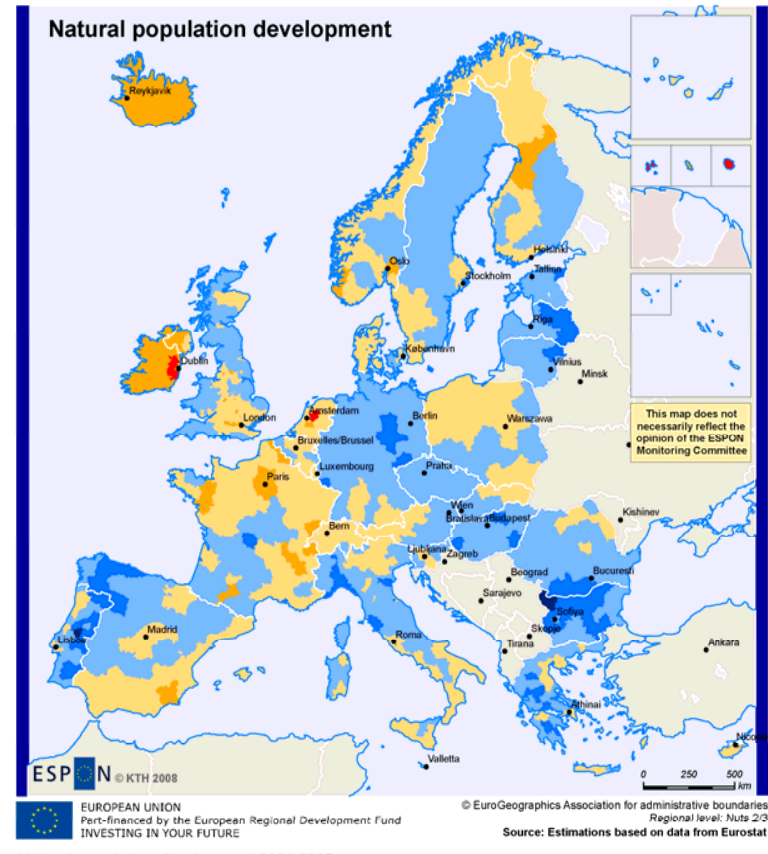
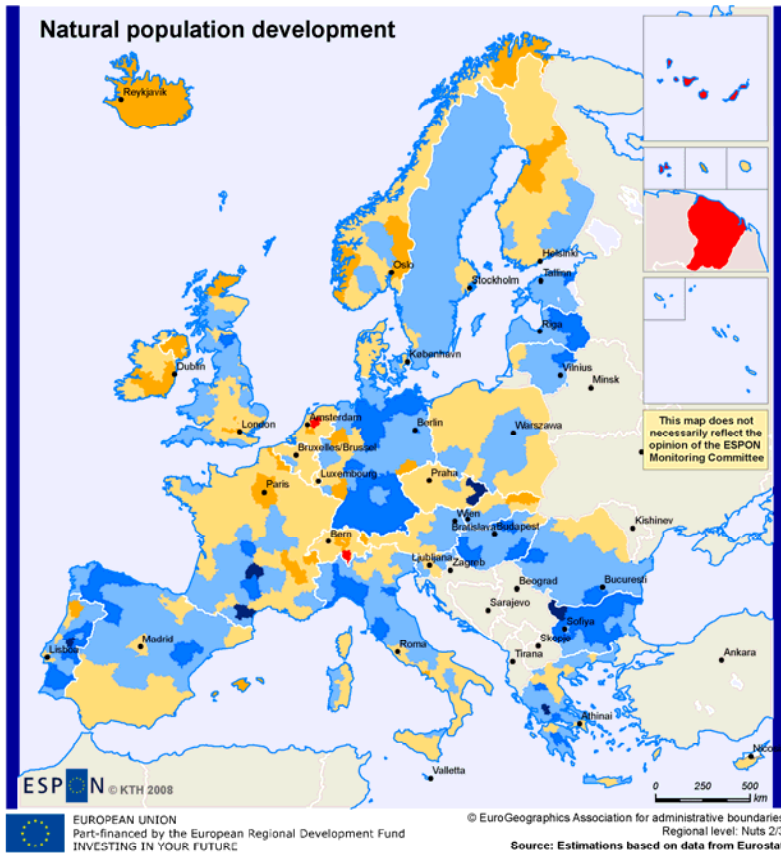
Southern Spain, France and Italy – better than in the end of the 90s

Problematic regions: Northern periphery better than in the end of the 90s, but still problematic

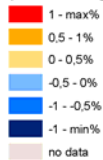
The Baltic States – still retarding and problematic

Eastern Europe, esp. Ro and BG, and East Germany – more problematic than in the end of the 90s

Natural Population Development (births-deaths) 1995-1999 and 2000-2005



Natural population development 1996-1999
(annual change, exp, base year 1995)



Natural population development 2001-2005
(annual change, exp, base year 2000)

Natural population change has a relatively small impact on population increase.

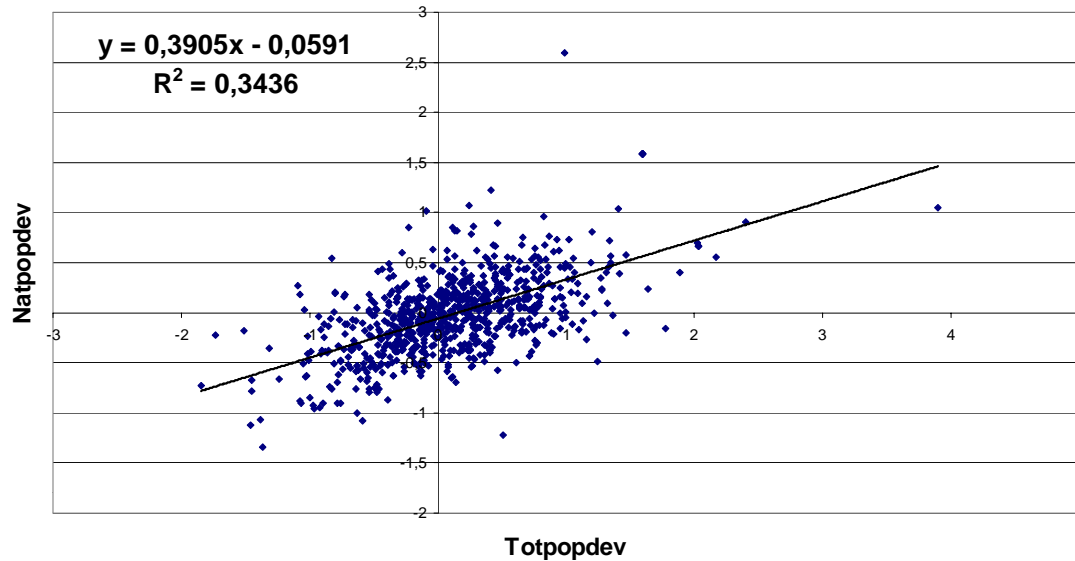
Instead – it reinforces the out-migration effects on population development in regions with population decrease – especially in the NMS and peripheral areas.

Exceptions are Northern Italy (negative natural population change), parts of Germany. Southern Spain seem to have a more positive natural population change

Norway, Iceland and Ireland have a positive natural population change.

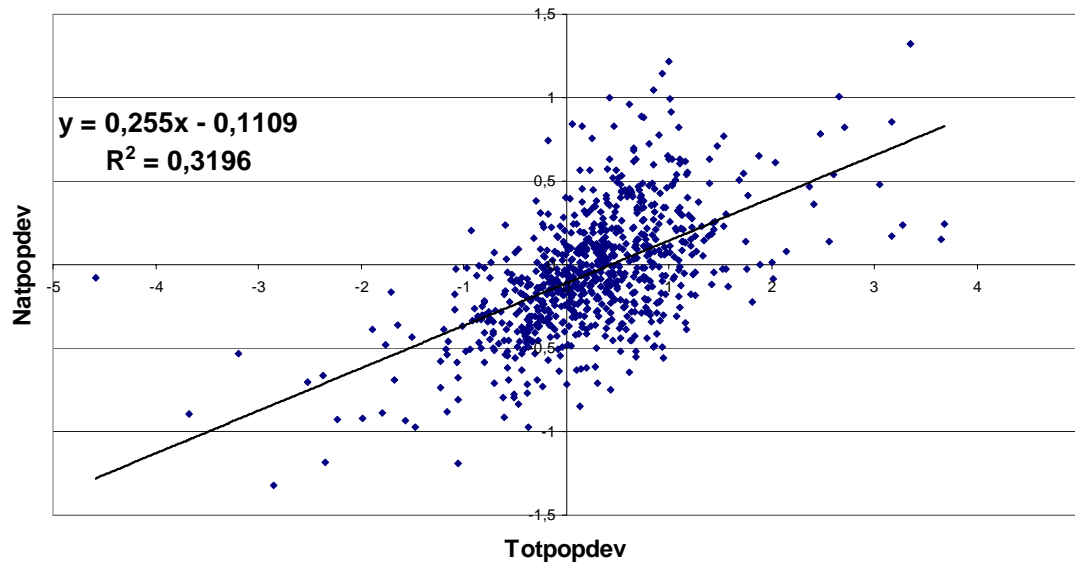
Peripheral areas have natural population decrease during both periods

Correlation totpopdev and natpopdev 1995-1999 (annual percent)

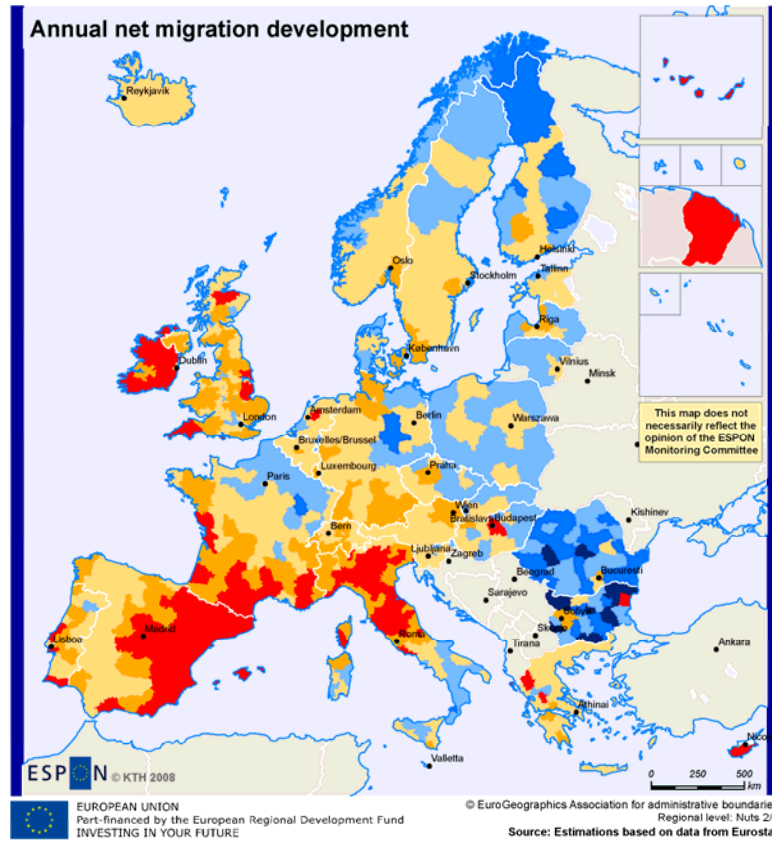
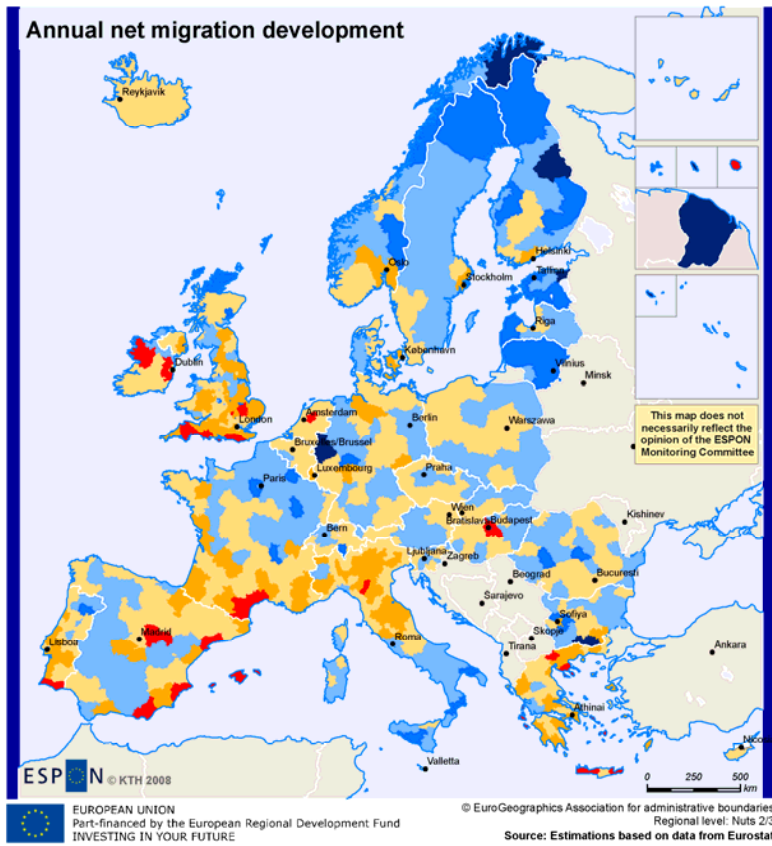


There is a significant positive correlation between natural population development and total population development at NUTS 2/3-level during the both periods

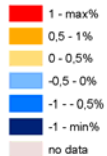
Correlation totpopdev and natpopdev 2000-2005 (annual percent)



Net migration 1995-1999 and 2000-2005



Annual net migration development 1996-1999
(annual change, exp, base year 1995)



In-migration areas have a good population development and vice versa.

Southern Europe in a better situation – in-migration regions

Migration from East to West - Income gaps still of importance

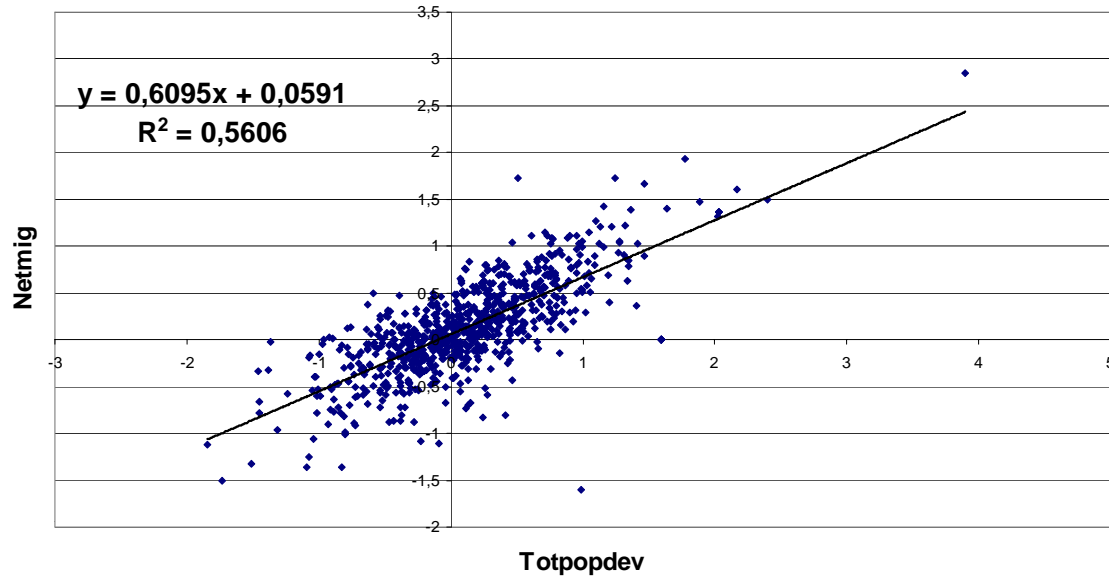
Especially in the NMS in Eastern Europe and regions in the Northern periphery can out-migration result in depopulation and dying-out regions. The situation has been worsened since the second half of the 90s for especially Bg and Ro.

Migration is the driver behind the population change.

But most important: Border effects

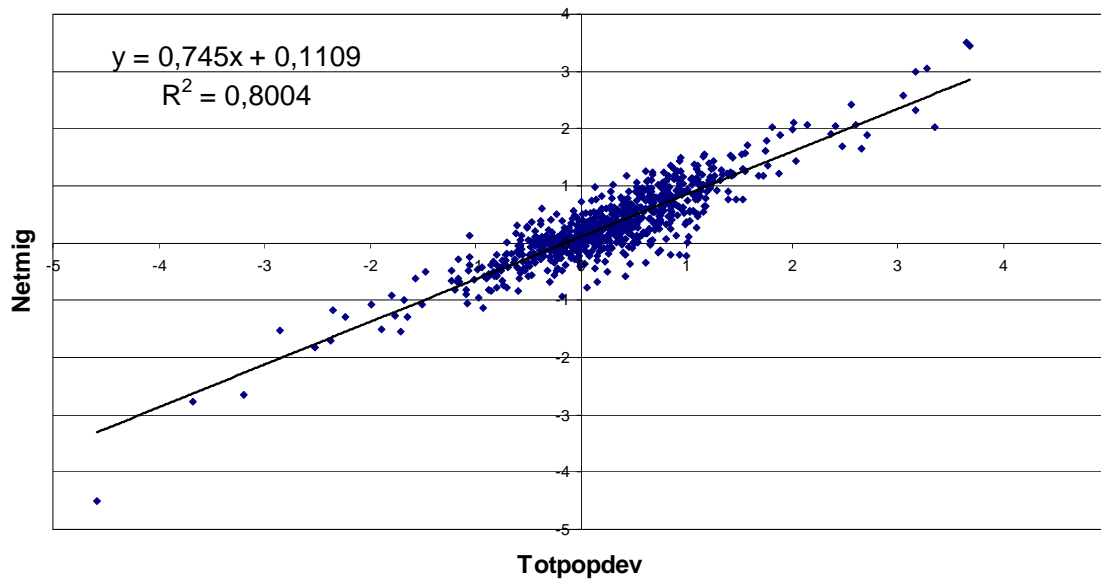
Annual net migration development 2001-2005
(annual change, exp, base year 2000)

Correlation totpopdev and netmig 1995-1999 (annual percent)

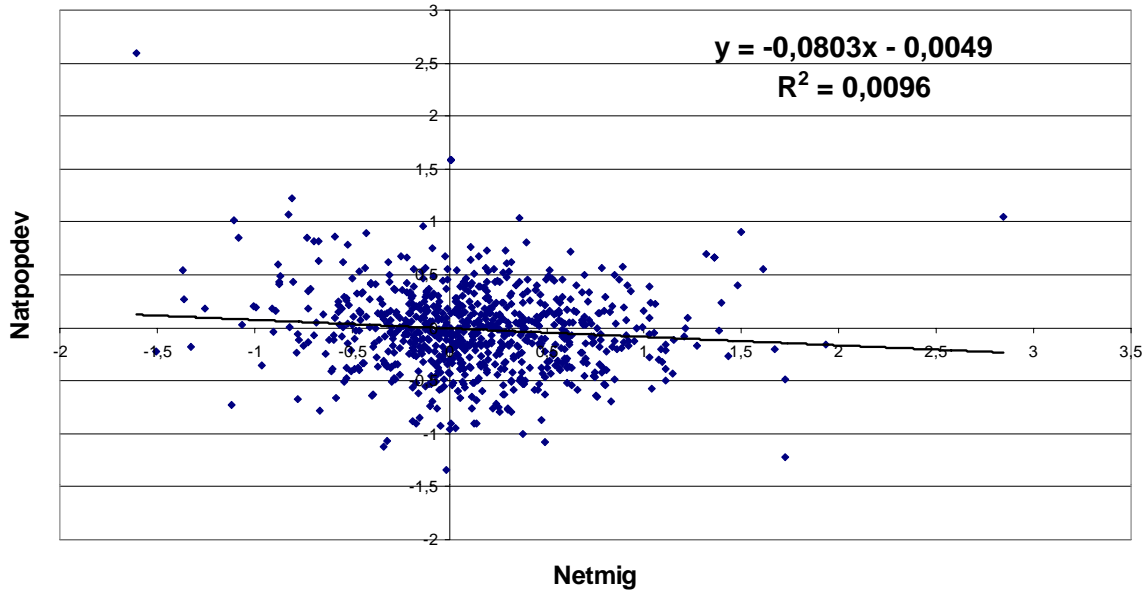


There is a strong significant positive correlation between net migration and total population development at NUTS 2/3-level during the both periods and this relation has been even stronger 2000-2005

Correlation totpopdev and netmig 2000-2005 (annual percent)

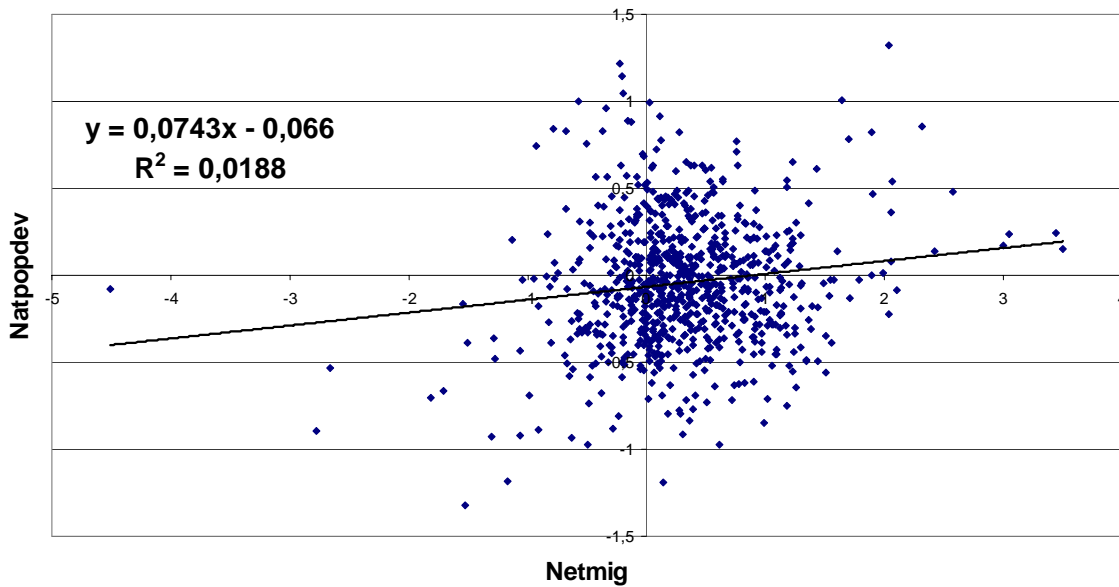


Correlation netmig and natpopdev 1995-1999 (annual percent)



There is no correlation between net migration and natural population change. During 1995-1999 the slope is even negative.

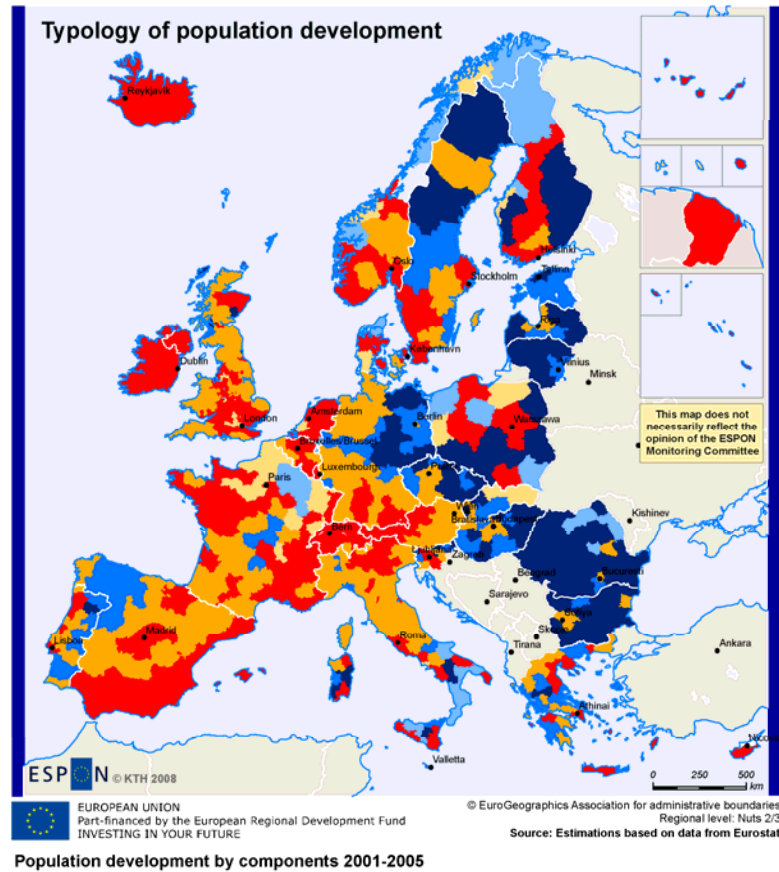
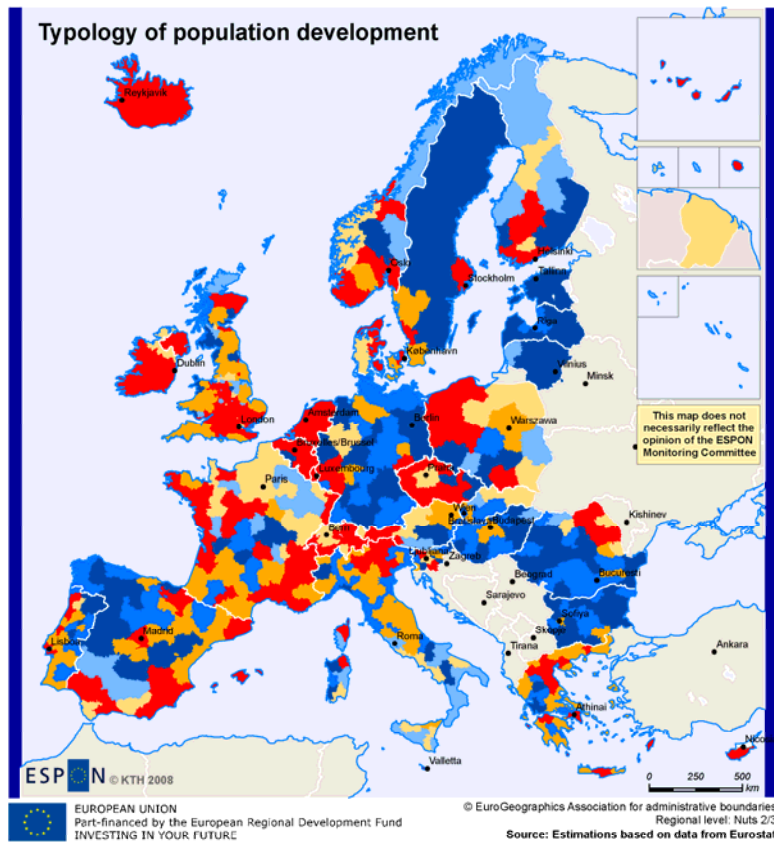
Correlation netmig and natpopdev 2000-2005 (annual percent)



**A schematic typology with regard to sustainable demographic development.
Six types. Point of departure: "The demographic equation" $PT=PN+PM$**

1	$PT > 0$	$PM > 0$	$PN > 0$	In-migration and young population/"high" TFR. High sustainability both in short and long term. The most favourable case.
2	$PT > 0$	$PM > 0$	$PN < 0$	In-migration of people with low TFR. Natural population decrease because of lopsided age structure and/or low TFR. Dependent on in-migration. No sustainability in long term – weak reproduction potential.
3	$PT > 0$	$PM < 0$	$PN > 0$	Out-migration and young population/"high" TFR. Short term – sustainability. Long term – eroding sustainability because of lopsided age structure (out-migration).
4	$PT < 0$	$PM < 0$	$PN > 0$	Out-migration but still young population/"high" TFR. Traditionally high fertility regions. Falling TFR -> low sustainability.
5	$PT < 0$	$PM > 0$	$PN < 0$	In-migration and old population/"low" TFR. In-migration of elderly people and/or singles, low reproduction potential. Dependent on in-migration. Low sustainability both in short and long run.
6	$PT < 0$	$PM < 0$	$PN < 0$	Out-migration and old population/"low" TFR, depopulation. No sustainability both in short and long term. The worst case.
PT=Total population development PM=Net migration PN=Natural population development				Based on ESPON 1.1.4 "Demographic trends and migration"

A schematic typology concerning sustainable population development 1995-1999 and 2000-2005



Population development by components 1996-1999

Population increase with

- Red: positive migratory balance and positive natural balance
- Orange: positive migratory balance and negative natural balance
- Yellow: negative migratory balance and positive natural balance

Population decrease with

- Light blue: negative migratory balance and positive natural balance
- Dark blue: positive migratory balance and negative natural balance
- Dark blue: negative migratory balance and negative natural balance
- Grey: no data

Type 1 (best case): Pentagon and Ireland, Metropolitan areas

Southern Spain, France and Italy – much better than in the end of the 90s

Type 6 (worst case): Northern periphery better than in the end of the 90s, but still problematic

The Baltic States – even more problematic

Eastern Europe, esp. Bg and Ro, and Eastern Germany – more problematic than in the end of th

The divergent processes between East and West have been accentuated!

The distribution among the types with regard to number of regions and the size of population.

1995 -1999	Type 1	Type 2	Type 3	Type 4	Type 5	Type 6
Numbers (N=775)	25	19	10	11	14	21
size	30	13	15	8	13	20
2000-2005						
Numbers (N=785)	33	29	6	4	11	17
size	40	25	8	4	8	15

Source: Estimations based on data from Eurostat, Statistics Denmark and UN Population Division.

Upgrading from lower types to higher between 1995-1999 and 2000-2005

Types 1 and 2 are more frequent 2000-2005 compared to 1995-1999 – a sign of better times or increased immigration from abroad?

Large regions are in more favourable position than small regions and it has been accentuated

This is primarily a function of in-migration in all estimations – migration is the prime driver with regard to population change

Indications of eroding territorial cohesion?

Natural population change is of small importance except type 1 (positive) and type 6 (negative)

Still a dividing line between east/north and west/southwest (not seen here, check the maps)

**Transfer of types between 1995-1999 and 2000-2005 (%).
Number of regions (N=803). NUTS2/3**

		From 1995-1999					
To		Type 1	Type 2	Type 3	Type 4	Type 5	Type 6
2000-2005	Type 1	82	17	45	28	4	3
	Type 2	7	67	7	13	45	29
	Type 3	3	0	34	13	1	0
	Type 4	2	1	8	27	0	1
	Type 5	2	13	4	0	24	21
	Type 6	4	2	2	19	26	46
	Total	100	100	100	100	100	100

Source: Estimations based on data from Eurostat, Statistics Denmark and UN Population Division.

Virtuous and vicious circles. The more positive population development 2000-2005 can be seen in the upgrading of most of the types.

Despite this, the polarisation tendencies are obvious!

**Policy recommendations concerning migratory movements (based on ESPON 2006 1.1.4):
Hamper future asymmetrical east-west migration and stimulate symmetrical migratory flows**

Why and implications:

- Increased east-west migration erodes territorial cohesion.
- Out-migration of qualified people have negative consequences on spatial development and competitiveness

Recommendations at meso and macro levels:

- Stimulate symmetrical migratory flows
- Close the gap in living conditions (in a wider sense) between regions and nations – symmetrical migratory flows
- Stimulate structural transformation of the economy among the new EU-members – risks in short run but necessary in the long
- Stimulate “regional enlargement” (even across borders) – larger functional local labour markets, decreased mismatch
- Better accessibility
- **But: Don't hamper migration in general – migration and mobility are lubricants for economic development!**

Total Fertility Rate (TFR) – the sum of the age-specific TFRs

Natural population change = births – deaths

Number of births – a function of TFR *and* age, gender and marital structure

Natural population development – cohort phenomenon

Natural population development – often a result of the age and gender structure and migratory movements among fertile women

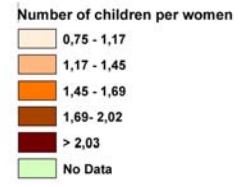
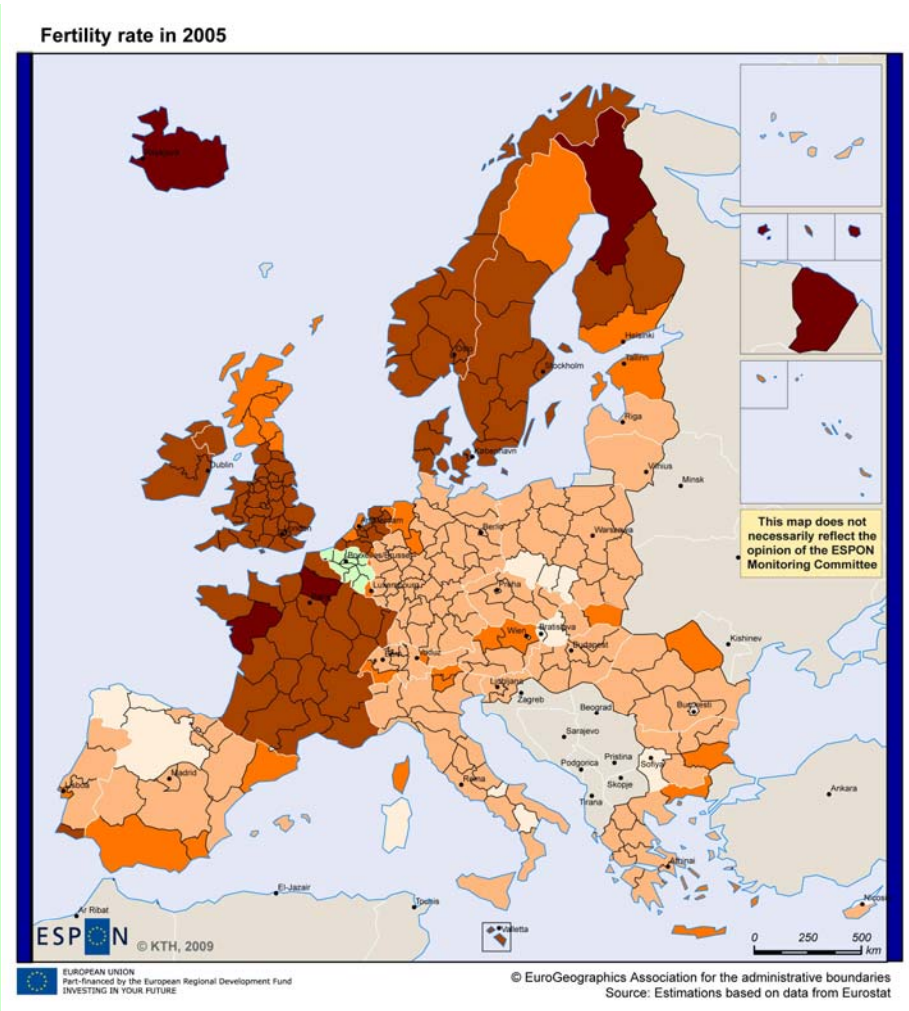
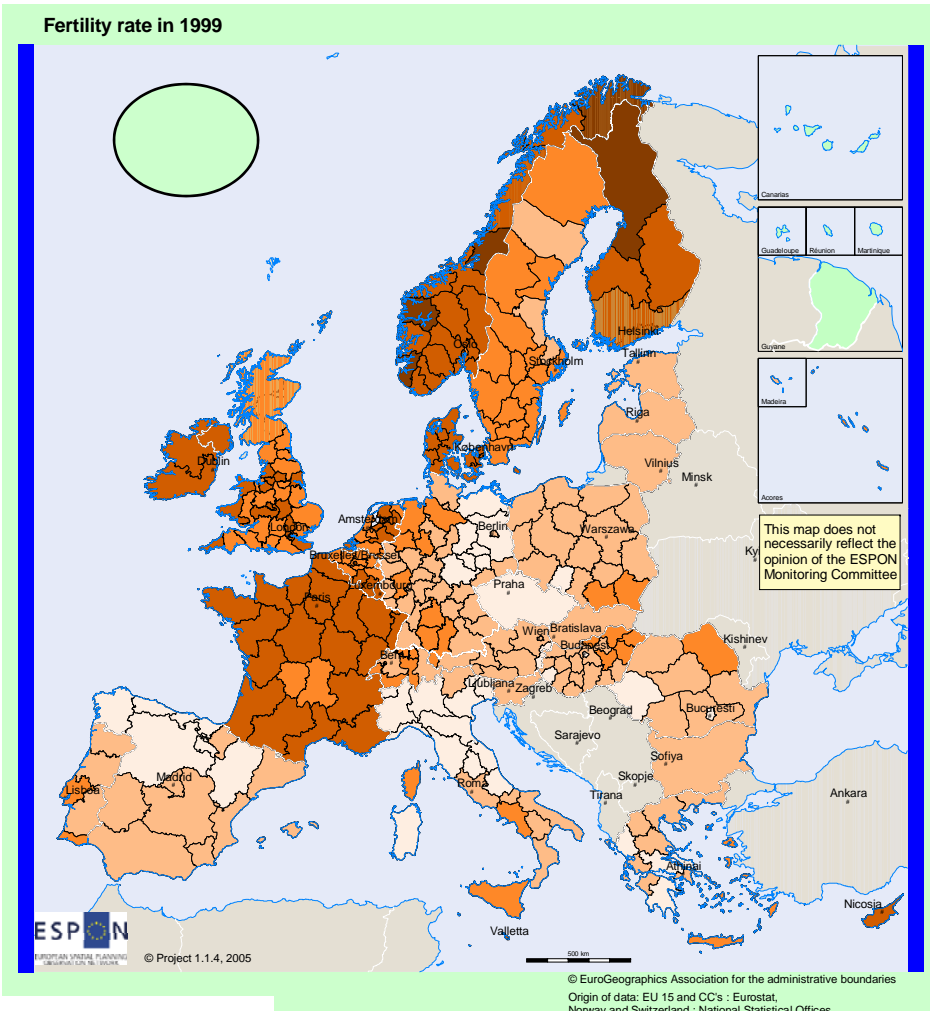
General trend: Since 1960 – decreasing TFR

Regional divergence 1960-1980, regional convergence 1980-1999

Sharp drop in TFR in the new member states (EU12)

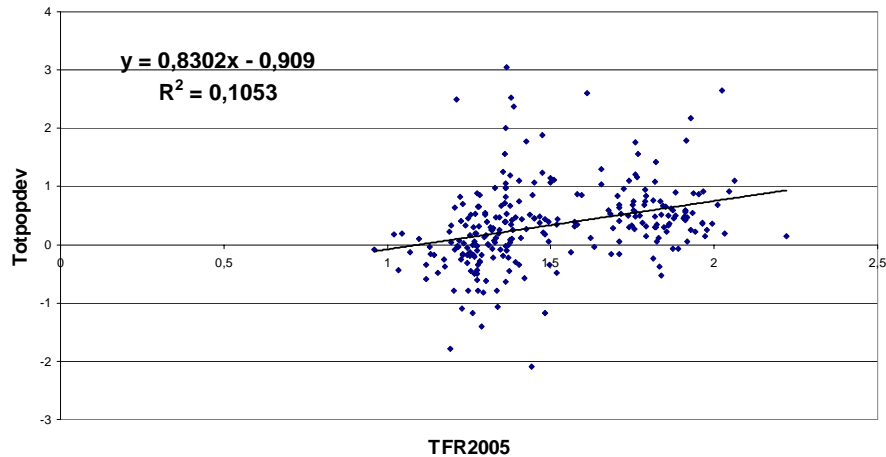
Result: Depopulation and dying out regions?

Total fertility rates (TFRs) 1999 (NUTS2/3) and 2005 (NUTS2)

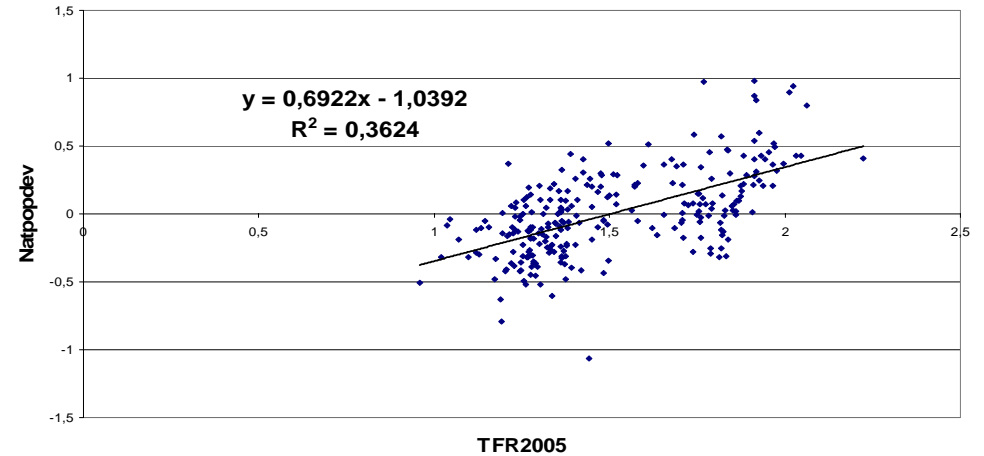


Higher TFRs 2005 than in the end of the 1990s (“all time low”?)

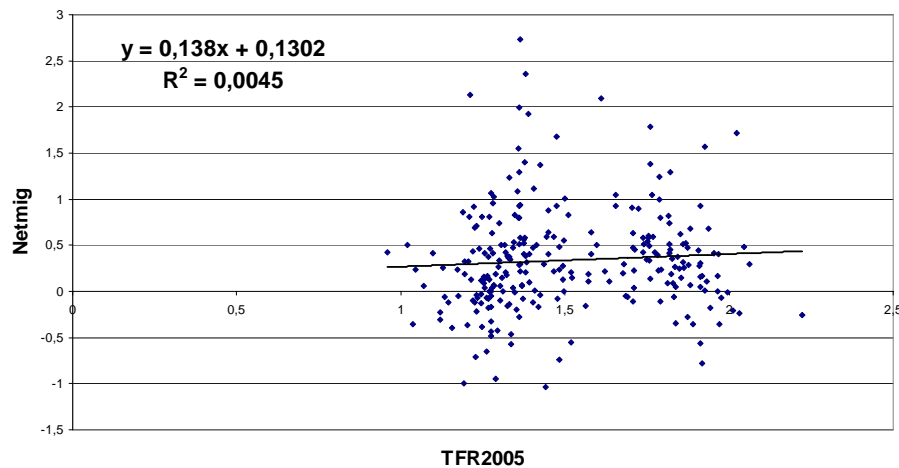
Correlation TFR and totpopdev 2000-2005



Correlation TFR and natpopdev 2000-2005



Correlation TFR and netmig 2000-2005

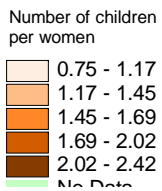
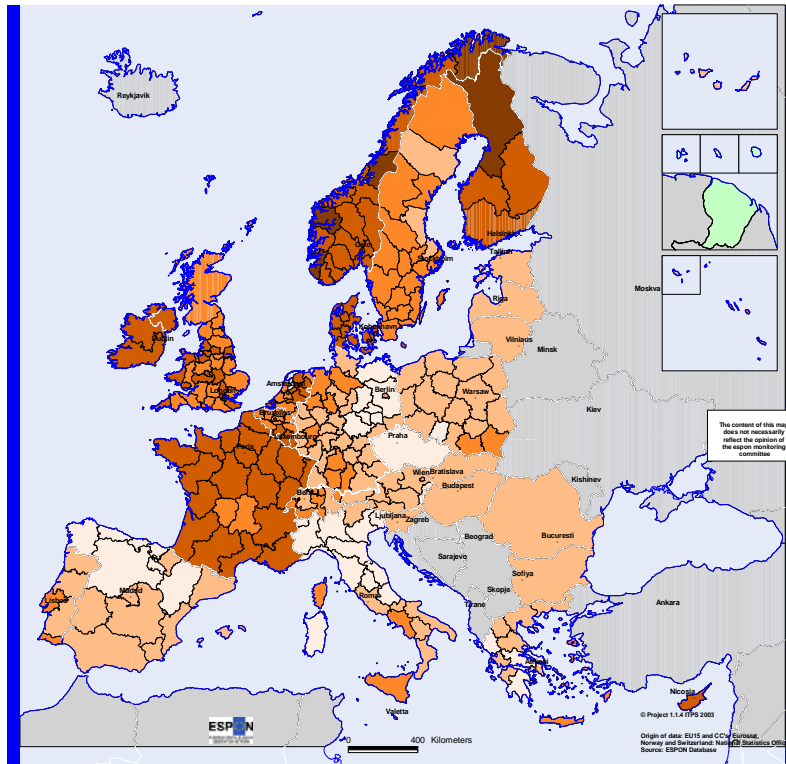


There are significant connections between TFR and natural population development. High TFR has thus a positive impact on natural population change (stayers?).

The correlation between TFR and total population development is almost absent and between TFR and net migration non-existent. This implies that e.g. in-migration areas have lower TFR as a consequence of the characteristics of the movers vs the stayers. This implies also that out-movers rise the TFR among the stayers.

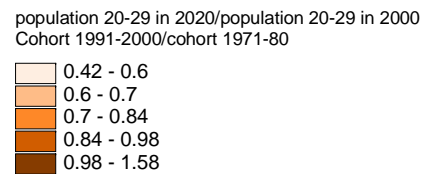
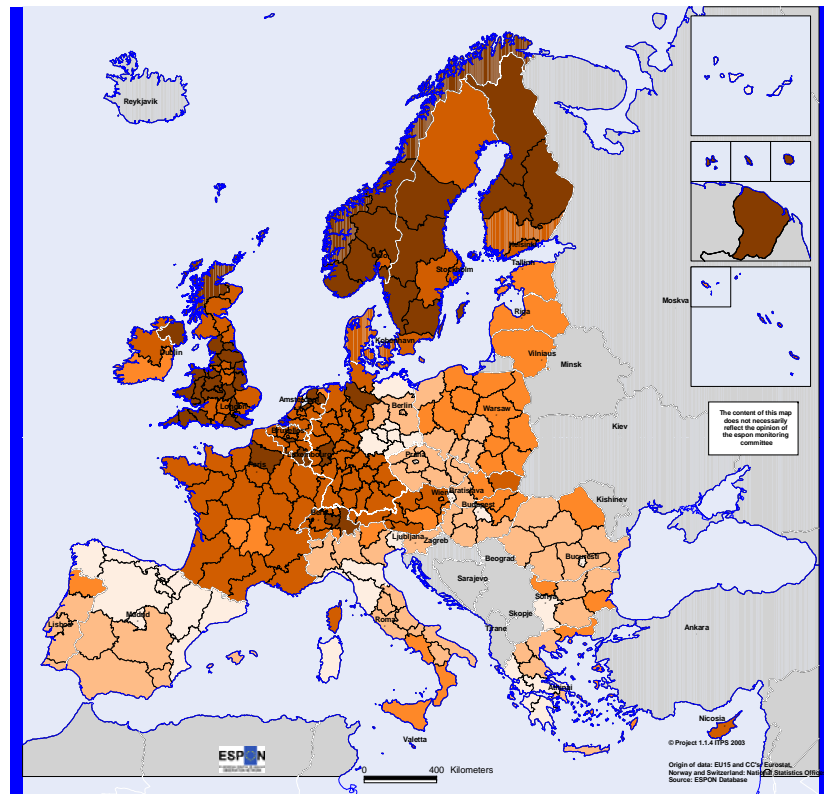
TFR 1999 to the left and natural growth potential 2020 to the right

Fertility rate in 1999



Sources : Eurostat and national sources for Switzerland and Norway + own estimate

Natural growth potential 2000 (2020)



Good reproduction potentials: Northern and central Europe

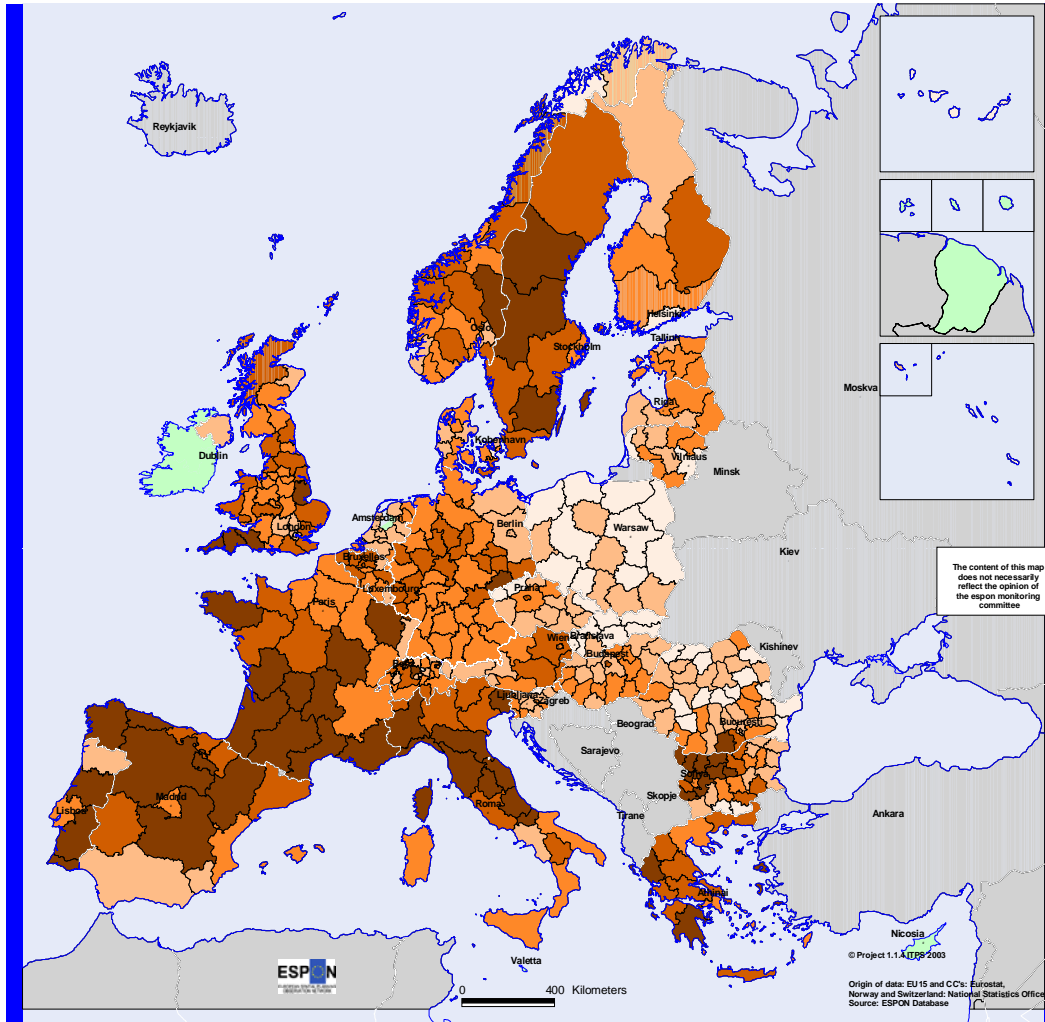
Bad reproduction potentials: Southern and Eastern Europe

Both expansive and retarding regions

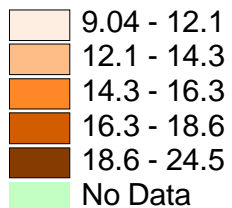
Reasons: low (and falling) TFR and (future) ageing

But be care: the reproduction potential is vulnerable to migratory movements and external chocks!!!

Elderly people (>65 years) in 2000



Part of the people over 65 years old in the population %



Ageing (65+)

Ageing" dependent of

- Fertility
- Migration – impact on age structure
- Life expectancy – probably prolongs the life cycle

"Ageing" most pronounced in Northern periphery

Southern Europe

Least pronounced in Poland, but a future problem – sharp drop in TFR!

Today: more a function of earlier out-migration than low fertility -> lopsided age structure

Tomorrow: more a function of low fertility, low reproduction potentials

Both sparsely and densely populated regions

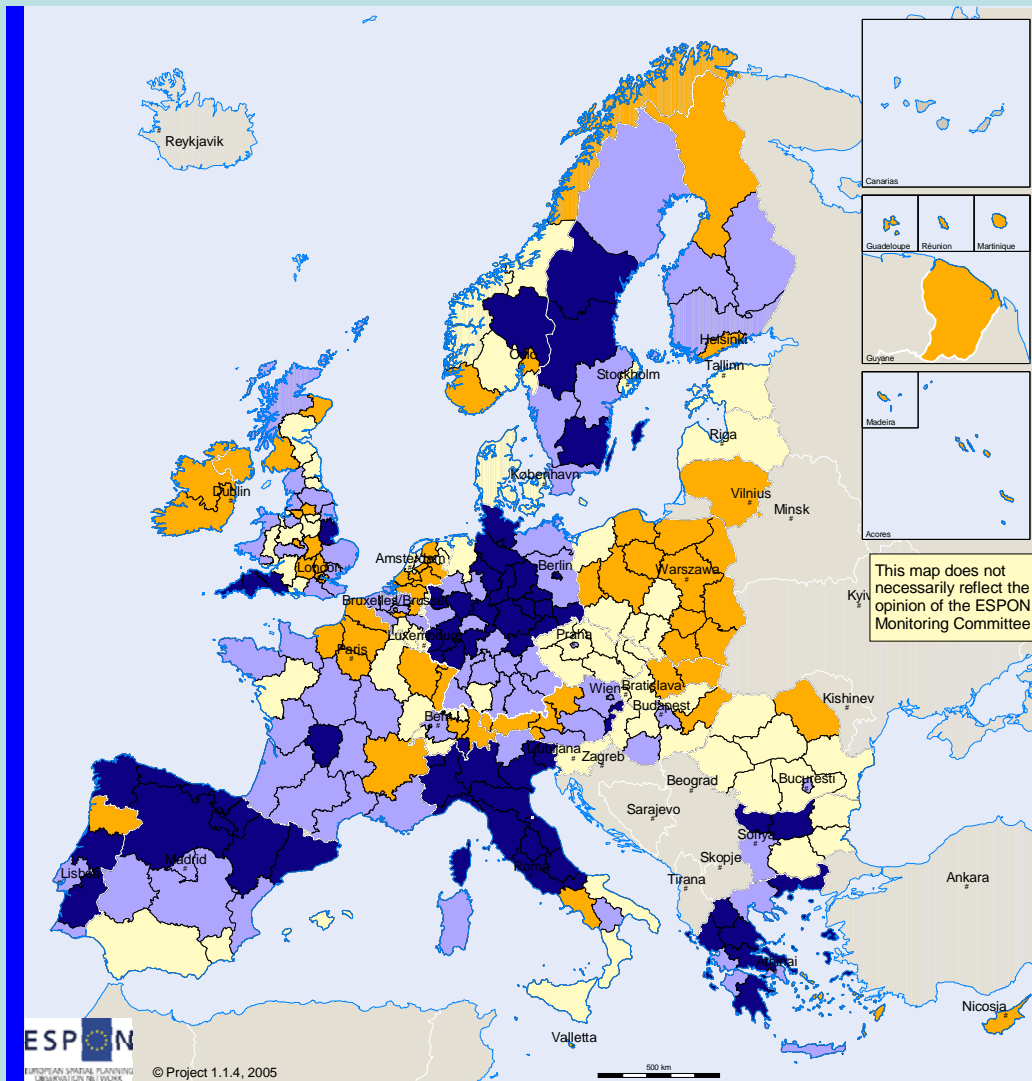
But: (Younger) elderly people (e.g newly retired) creates employment and incomes.

Good (local) consumers!

A growth sector?

Structural depopulation – eroding territorial cohesion?

Average score on indirect depopulation indicators in 2000



Average score on indirect depopulation indicators in 2000

- very low relative depopulation
- low relative depopulation
- high relative depopulation
- very high relative depopulation

© EuroGeographics Association for the administrative boundaries
 Origin of data: EU 15 and CC's : Eurostat,
 Norway and Switzerland : National Statistical Offices.

“Structural depopulation”
 Estimated by a combination of
 depopulation factors

**Worst: Northern periphery,
 Germany, Northern Italy, parts of
 Spain, Greece, Spain and Portugal
 (ageing regions)**

**Eastern Europe - still young
 population but future depopulation
 (falling TFRs, out-migration, eroding
 reproduction potential)**

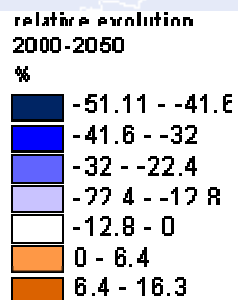
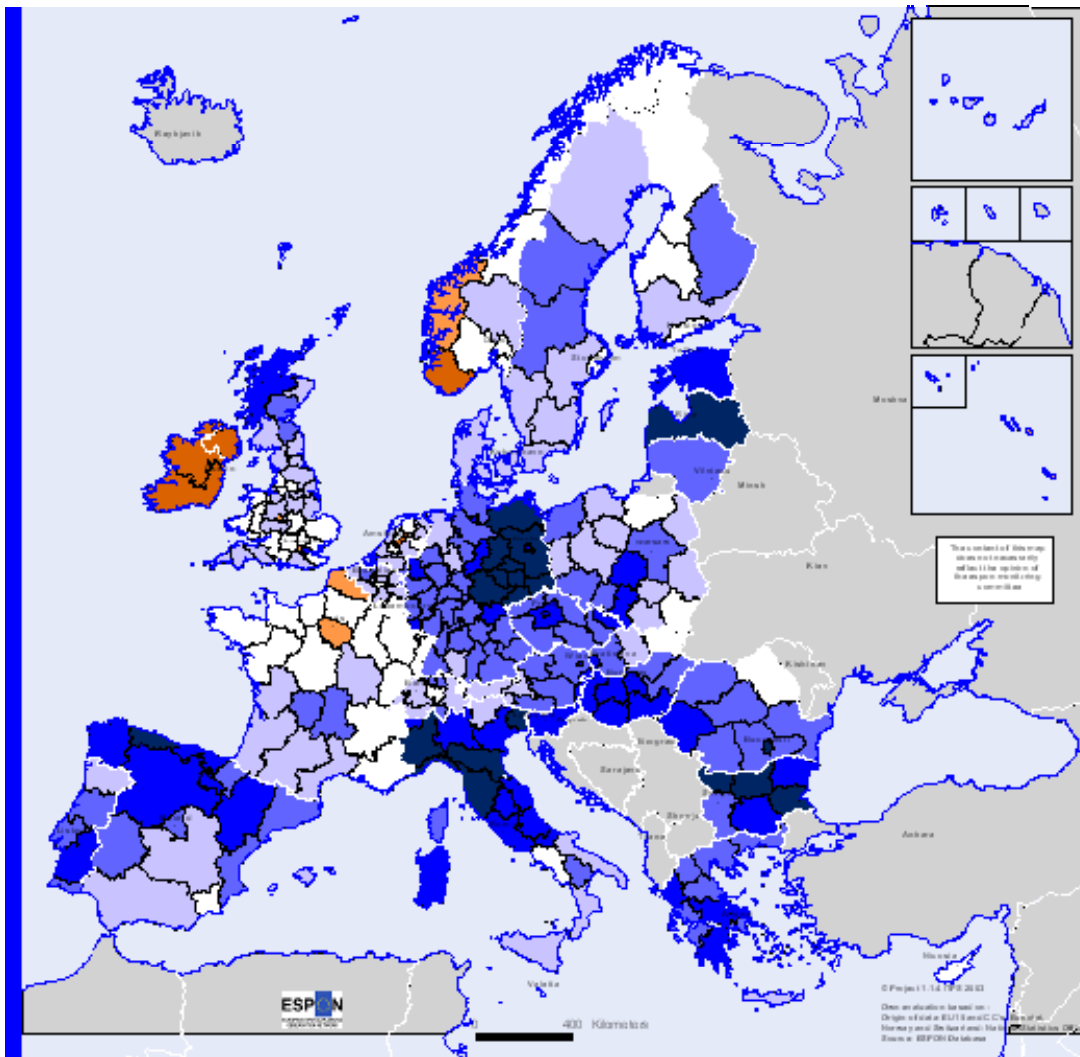
**Pentagon and BSR – both
 depopulation and non-depopulation
 Areas**

**In EU29: Both expansive and
 retarding regions!**

**In EU29: Both urban and rural areas –
 depending of continuous in-
 migration!**

**A way out of the population crisis –
 replacement migration?**

But: From where?



Productivity development and structural transformation – help for the economy, not for the population decrease (at least not in short term)

Replacement migration

Model A – the most simple and straightforward model (unrealistic but pedagogical)

A cohort model:

Constant TFR

No migration

No productivity development

Population decrease in most parts of Europe in combination with ageing!

Replacement migration – a way out of a future population crisis, labour shortage and ageing?

Policy recommendations concerning replacement migration (based on ESPON 2006, 1.1.4)

Point of departure: Immigration is necessary in various degrees to hamper the effects of the decrease in population and labour force in EU29 in the future.

Recommendations:

- **Sustainable development will not be achieved if immigrants are free to settle down wherever they want in EU29 (hot political topic).**
- **Immigration policies must promote immigration to peripheral areas that must be done more attractive. There are peripheral areas with labour shortage!**
- **Focus on immigrants with different skills and competence concerning various countries and regions in EU29. The needs differs with regard to the economic and labour market structure (hot political topic, segmentation, discrimination, etc).**
- **Higher female labour force participation rates**
- **Stimulate productivity development and structural transformation – substitute labour with capital and labour with labour**

A summing-up and concluding remarks

- **Total fertility rates (TFR) have dropped dramatically in recent decades and are now below the reproduction level in almost every country in EU29 and in the majority of the NUTS2- and NUTS-3 regions.**
- **Especially low TFRs are to be found in Southern and Eastern Europe.**
- **Natural population decline is a fact in a lot of regions and migratory movements are the prime driver behind population changes.**
- **The age structure is important for natural population development, which means that this is not only dependent on the TFR development. Natural population change is primarily a cohort phenomenon.**
- **There are signs of polycentric population development occurring within the Pentagon, though population development remains monocentric in areas beyond the Pentagon.**
- **Young persons migrate to large urban areas and persons in the upper middle age group move to areas with pleasant surroundings and some signs of economic revival.**

- **Depopulation is a function a high out-migration that is reinforced by low fertility rates and a skewed age structure**
- **Depopulation areas are often located in peripheral parts of the ESPON Space.**
- **Expansive regions are dependent on a continuous inflow of people in the future – otherwise depopulation may be a fact.**
- **Immigration from other parts of the world can, however, not provide a solution to the European population problem neither in short or in the long term.**
- **The future need for extra-European immigrants will be relatively higher in the new member states than in the old ones.**

Thanks for listening!

Questions, comments, inputs, critics?