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Demographic and migratory flows affecting European regions and cities

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Deliverable 3
Typology of Regions

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This basic report exists only in an electronic version.

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List of Abbreviations

CBR	Crude Birth Rate
CDR	Crude Death Rate
CEE	Central and East Europe
DR	Dependency Ratio
EC	European Community
EFTA	European Free Trade Association
EU27+4	The present 27 EU Member States including the 4 EFTA countries Iceland, Liechtenstein, Norway and Switzerland is corresponding to the "ESPON space"
EU-LFS	European Labour Force Survey
GDP	Gross Domestic Product
ILO	International Labour Organization
ISCED	International Standard Classification of Education
ISCO	International Standard Classification of Occupations
INED	Institut National Etudes Démographiques (French National Institute for Demographic Studies)
LFS space	Countries/regions covered by the EU-LFS (i.e. EU27+4 or ESPON space minus Iceland, Malta, Switzerland, Liechtenstein and the French Overseas Departments and Territories (Martinique, Guadeloupe, Guyane and Réunion)
NACE	Classification of Economic Activities in the European Community
NMS	New Member States
NUTS	Nomenclature d'Unités Territoriales Statistiques (Nomenclature of Territorial Units for Statistics)
NSI	National Statistical Institute
OADR	Old Age Dependency Ratio
PaSR	Parent Support Ratio
PPP	Purchasing Power Parity
TFR	Total Fertility Rate
YDR	Youth Dependency Ratio

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1 Introduction

Regions are affected differently by the ongoing demographic changes with an ageing European population, in addition to migration (ESPON 2009a:21ff). The research and policy questions DEMIFER is aiming to address involve, among others, the effects of future demographic developments and the so related changes in the labour force in different kinds of regions (ibid.; p.1). Therefore, it is necessary to identify types of territories, regions and cities, which share common development challenges and are affected the most – positively or negatively – by the identified structures, trends and perspectives.

Aims & Objectives

The main research question regarding DEMIFER Activity 2 "Typology of regions and cities" was specified within the DEMIFER Inception Report (ESPON, 2008:7):

> *"How will the demographic development, i.e. natural development of population as well as migration, affect different types of regions and cities?"*

In this respect the effects of demographic and migratory flows on the size and structure of the population and particularly on the labour force need to be assessed. The conceptual framework of DEMIFER Activity 2 focuses on the size and structure of the population and particularly on the labour force (ESPON 2008a:7f), leading to the principal aim of this DEMIFER Activity (ibid.; p.40):

> *„(…) to develop a typology of regions and cities based on demographic variables and to link the resulting typology to economic (…) variables.*"

The development of such a demographic typology and the linkage of the typology to economic variables is the topic of this DEMIFER Deliverable (D3).

Addressing the issue

To assess the impact of demographic and migratory developments on social and economic cohesion we developed a demographic typology aiming to detect homogenous demographic structures and short-time population dynamics at NUTS 2 level. The demographic status is distinguished by a certain age structure and the population dynamics are expressed by the demographic events (births, deaths) and migratory flows. This classification of European regions will be used as input and output for projections and case studies, elaborated within the DEMIFER project (cf. ESPON 2009a).

To achieve such a classification, the following objectives were set:

- Outline the spatial and temporal principles (Chapter 2).
- Investigate the available data sources and the applicability of the considered variables (Chapter 2).
- Develop a methodological approach to conduct hierarchical and non-hierarchical cluster analyses in order to classify European regions by demographic characteristics (Chapter 2).
- Carry out different cluster analyses and compare the classification results (Chapter 3).
- Explain and illustrate the classification (Chapter 3 and 4).
- Link the demographic typology to socio-economic data (Chapter 5).

2 Data & Methodology

When developing a typology, some basic principles as well as the methodology should be clarified before starting with any statistical exercise. Aiming to reduce the large number of 287 NUTS 2 regions into a small number of types, the methodology to be applied is obviously cluster analysis. Like factor analysis, cluster analysis is a statistical technique to reduce data, whereas the first is looking for similar variables and the latter's objective is the grouping together of similar observations (ROGERSON 2006:263). Generally speaking, a cluster analysis is grouping cases of data based on the similarity of various variables. In the case of a geodemographic classification, it is necessary to clarify the spatial and temporal principles first, before choosing the appropriate input variables for the cluster analysis.

2.1 Spatial and Temporal Principles

According to the DEMIFER project requirements, NUTS 2 is the prior regional scale for constructing the classification. On the one hand, NUTS 3 would be preferable from the analytical point of view, but due the given data situation it appeared to be realistic to elaborate the final classification on NUTS 2 level. On the other hand, the fact of using NUTS 2 will be an advantage for other research activities working on the regional level of NUTS 2 within the DEMIFER project.

Because of the temporal restriction of the available data the timeframe to be analysed is embedded within the period 1990/2000 to 2008 (latest). This period enables an accurate analysis of the current status and the so connected short-term trends. It seems realistic to target the year 2005 for an up-to-date statistical analysis, hence this sense the period 2001 to 2005 will be used to cover the short-term on which the current status (i.e. the year 2005) is based on.

By the nature of demographic developments long-term analyses are crucial to shed more light on the background of current population dynamics. However, due to the lack of sufficient data these long-term developments will not be included in the construction of the typology.

2.2 Selection of Variables

The available data restricted the choice of demographic variables to population by age and sex and the components of population development (see also Chapter 3.2.1).[1]

2.2.1 Selection Method

Even then a wide range of possible variables is unfolding, simply by figuring out one or more convenient age groups. To include a minimum

[1] Data updates until July 2009 were considered for the elaboration of the Demographic Typology.

number of variables, it was feasible to compare them by means of a simple correlation matrix as shown in Table 1.

Table 1 Correlation Matrix of Potential Input Variables

Correlation Matrix of Potential Input Variables											
	age_0004	age_2039	age_4564	age_65+	NAT	MIG	TTL	CBR	CDR	TFR	LE
age_0004	1	0.097	-,597 (**)	-,619 (**)	,905 (**)	0.081	,517 (**)	,984 (**)	-,549 (**)	,877 (**)	0.057
age_2039	0.097	1	-,519 (**)	-,514 (**)	,272 (**)	,119 (*)	,231 (**)	,180 (**)	-,314 (**)	-,325 (**)	-,311 (**)
age_4564	-,597 (**)	-,519 (**)	1	,365 (**)	-,631 (**)	-,165 (**)	-,446 (**)	-,619 (**)	,459 (**)	-,321 (**)	-0.03
age_65+	-,619 (**)	-,514 (**)	,365 (**)	1	-,678 (**)	,170 (**)	-,204 (**)	-,633 (**)	,539 (**)	-,328 (**)	,402 (**)
NAT	,905 (**)	,272 (**)	-,631 (**)	-,678 (**)	1	,157 (**)	,625 (**)	,907 (**)	-,831 (**)	,702 (**)	,231 (**)
MIG	0.081	,119 (*)	-,165 (**)	,170 (**)	,157 (**)	1	,869 (**)	0.092	-,200 (**)	0.051	,505 (**)
TTL	,517 (**)	,231 (**)	-,446 (**)	-,204 (**)	,625 (**)	,869 (**)	1	,527 (**)	-,574 (**)	,389 (**)	,514 (**)
CBR	,984 (**)	,180 (**)	-,619 (**)	-,633 (**)	,907 (**)	0.092	,527 (**)	1	-,533 (**)	,855 (**)	0.022
CDR	-,549 (**)	-,314 (**)	,459 (**)	,539 (**)	-,831 (**)	-,200 (**)	-,574 (**)	-,533 (**)	1	-,309 (**)	-,424 (**)
TFR	,877 (**)	-,325 (**)	-,321 (**)	-,328 (**)	,702 (**)	0.051	,389 (**)	,855 (**)	-,309 (**)	1	,159 (**)
LE	0.057	-,311 (**)	-0.03	,402 (**)	,231 (**)	,505 (**)	,514 (**)	0.022	-,424 (**)	,159 (**)	1
	** Correlation is significant at the 0.01 level						*Correlation is significant at the 0.05 level				

On the one hand, strong correlations within a dataset are undesirable for cluster analysis, as they represent data redundancy. On the other hand highly correlating variables imply a predictive and descriptive power, which is advantageous for a classification. In this respect highly correlated variables, at least those who do not share the same denominator, shall not be dropped automatically, but judged on the individual merits of each variable against every other variable (cf. VICKERS et al. 2005:8ff). Following this principle, the choice of input variables was made after testing a whole set of different indicators for the cluster analysis (see Chapter 3.2).

The number of variables used should be as small as possible with respect to a satisfactory representation of the main dimensions with respect to the aim of the classification (VICKERS 2006a:117). In order to avoid a weighing of the variables, which would further complicate the interpretation of the achieved classification result, the process of choosing the right variables should be distinctly selective (ibid., p. 132).

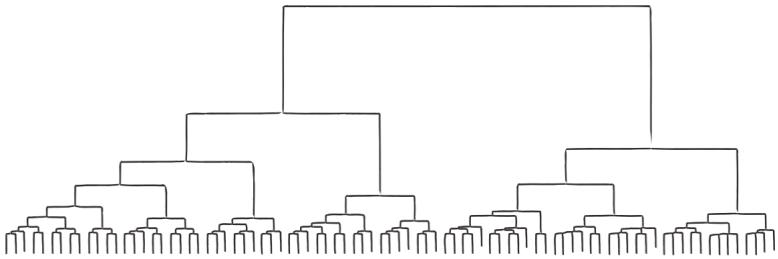
2.3 Cluster Analysis

The variables used as input for a cluster analysis might be differing by scale – e.g. shares of age groups ranging from 0% to 100%, demographic rates, which can be positive and negative, or live expectancies in years with a theoretically open interval to the top. To ensure that each variable has the same weighting in the classification, the variables need to be standardised over the same range (VICKERS et al. 2005:28). The here applied and most common form of standardisation is to create z-scores. This method expresses the difference of the values to the mean by standard deviations, whereas the mean of z-scores is always 0 and the standard deviation is 1 (JANSSEN & LAATZ 2005:218).

When clustering a set of data points into non-overlapping groups of points (i.e. clusters), the points in a cluster are more similar to one another than to points in other clusters (FABER 1994:138). By doing so, every cluster

can be characterised by a single reference point, usually an average of the points in the cluster, i.e. the cluster centre (ibid., p. 139). Several clustering methods do exist, whereas Ward's hierarchical method and the non-hierarchical k-Means approach are the most widely used.

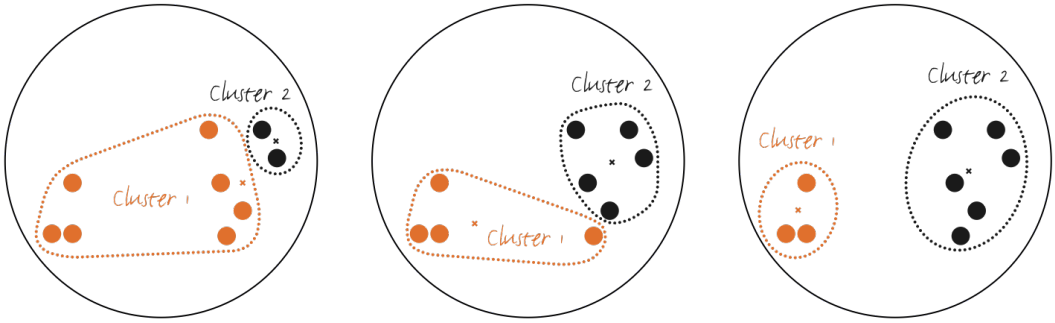
Figure 1 Schematic illustration of the agglomeration process of a hierarchical cluster analysis.



Ward's method is following a bottom up approach starting with n groups of one case each. At the first stage of agglomeration, two of these cases will be combined to form a cluster. At the next step of agglomeration, either a third case is added to the cluster or two other cases are merged into a new cluster; and so on, until all cases belong to one cluster (see Fig. 1). However, once a cluster is formed, it cannot be split (VICKERS 2006b).

Contrary to hierarchical methods, the non-hierarchical k-Means approach is top-down orientated and requires the number of clusters to be specified in advance. By means of an iterative relocation algorithm, the cases are moved from one cluster to another (see Fig. 2) – allowing already formed clusters to be split again – until the greatest improvement in the sum of squares within each cluster is obtained (cf. VICKERS 2006b). Generally, a "good" clustering result is achieved, when the within-cluster sum-of-squares, signifying the proximity of cases within a cluster, is as small as possible and the between-cluster sum-of-squares, expressing the distance of clusters to each other, is as high as possible.

Figure 2 Schematic illustration of the iteration process of k-Means clustering algorithm



Source: FABER (1994:142 – Fig. 3); own illustration.

The clustering technique to be applied for the development of the demographic typology was already determined in the DEMIFER Inception Report (ESPON 2008a:25):

> *"The method used for constructing a typology will be hierarchical cluster analyses to gain an overview about the similarity structure of the regional units and to extract a starting configuration of cluster centres which will be improved by a non-hierarchical cluster procedure (see e.g. VICKERS et al. 2005). The combination of a hierarchical and a non-hierarchical cluster procedure delivers the most reliable outcome."*

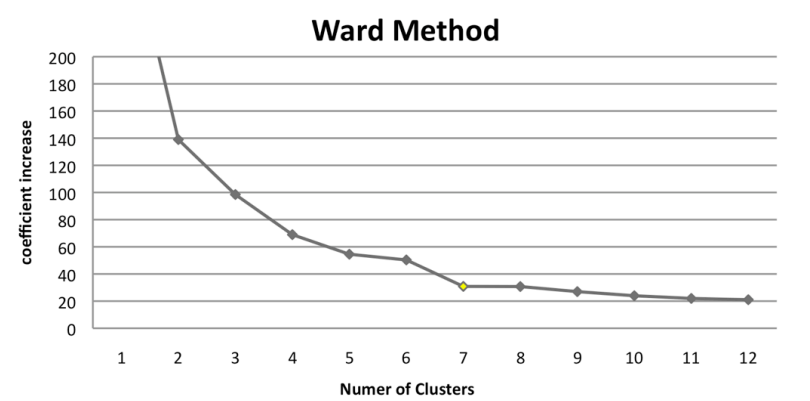
Taking this into account, the result of the hierarchical cluster analysis (Ward's method) was refined by a non-hierarchical cluster analysis (k-Means). The cluster centres generated by the Ward method were used as initial cluster centres for the k-Means cluster analysis (cf. JANSSEN & LAATZ 2007:454). Before doing so, the number of clusters must be designated by means of hierarchical cluster analyses.

The optimal number of types of regions (i.e. clusters) to be achieved was roughly set to the range of 4 to 10, because cluster groups of around six in number enable a good visualisation and ensure descriptive names. Therefore, clusters from 2 to 12 were produced to see how the average within-cluster distance changes (cf. VICKERS et al. 2005:35ff). There is no distinctive rule determining an ideal number of clusters. According to VICKERS et al. (2005:34), the following issues should be considered when choosing the number of clusters:

- Analysis of average distance from cluster centre for each cluster number option. The ideal solution would be the number of clusters, which gives smallest average distance from the cluster centre across all clusters.
- Analysis of cluster size homogeneity for each cluster number option. It would be useful, where possible, to have clusters of as similar size as possible in terms of the number of members within each. This makes the clusters more comparable with each other.
- The number of clusters produced should be as close to the perceived ideal as possible. This means that the number of clusters needs to be of a size that is useful for further analysis.

Figure 3 Increase of the Error Sum of Squares (Ward Method)

error sum of squares	cluster number	coefficient increase
1144.00	1	316.43
827.57	2	138.97
688.60	3	98.50
590.10	4	68.97
521.13	5	54.54
466.59	6	50.34
416.25	7	30.84
385.40	8	30.74
354.67	9	27.00
327.67	10	23.98
303.69	11	21.99
281.71	12	21.05



According to BACKHAUS et al. (2007:430f), the so-called "elbow-criteria" – describing a significant difference in the increase in the average distance from the cluster centre (i.e. the increase of the error sum of squares) – can be seen as a rule-of-thumb when deciding the number of clusters. Figure 3 (left) shows the increase of the error sum of squares, respectively its increase at each cluster number (2 to 12). This increase was then plotted to for a visual identification of the relevant "jump" – the so-called "elbow" – in the development of the heterogeneity in relation to each cluster number. (cf. BACKHAUS et al. 2007:430f). In this case, the "elbow" was clearly evident at the cluster number seven (see Figure 3/right).

Table 2 Cluster Membership (Ward & K-means Method)

Crosstabulation of Cluster Methods									
		K-Means Method							
	Type	1	2	3	4	5	6	7	Total
Ward Method	1	59	0	7	0	1	0	0	67
	2	1	52	1	0	8	0	0	62
	3	0	8	40	0	0	1	0	49
	4	6	0	0	31	5	0	0	42
	5	13	0	0	0	24	0	0	37
	6	0	1	0	2	0	12	2	17
	7	0	0	5	0	0	0	8	13
	Total	79	61	53	33	38	13	10	287

Once the number of clusters has been decided and initial cluster centres were set by the Ward method, the k-Means approach can be applied, aiming to deliver the optimum assignment of objects to the clusters in an iterative process (cf. JANSSEN & LAATZ 2007:454). Table 2 demonstrates the changes in the cluster membership by cases between the Ward and the k-Means method in the specified number of clusters – in this case 7. The number of cases changed in total and per type due to the integration of some outlier regions from Type 7 to the other 6 types of the classification. For details of the adaption and aggregation of outlier regions, see Annex 6.

3 Demographic Typology of Regions

This chapter is aiming to present the different types of regions resulting from the demographic typology of European (NUTS) regions based on demographic characteristics (see Chapter 3.3). In order to establish a connection between this newly developed classification and previously developed demographic classifications under the ESPON banner, a brief compilation of existing ESPON typologies will be presented right at the outset of this section (3.1). In another brief section the "making-of" the classification will be described (3.2). Further demographic illustration and socio-economic linkages of the classification result will be presented in the coming Chapters 4 and 5.

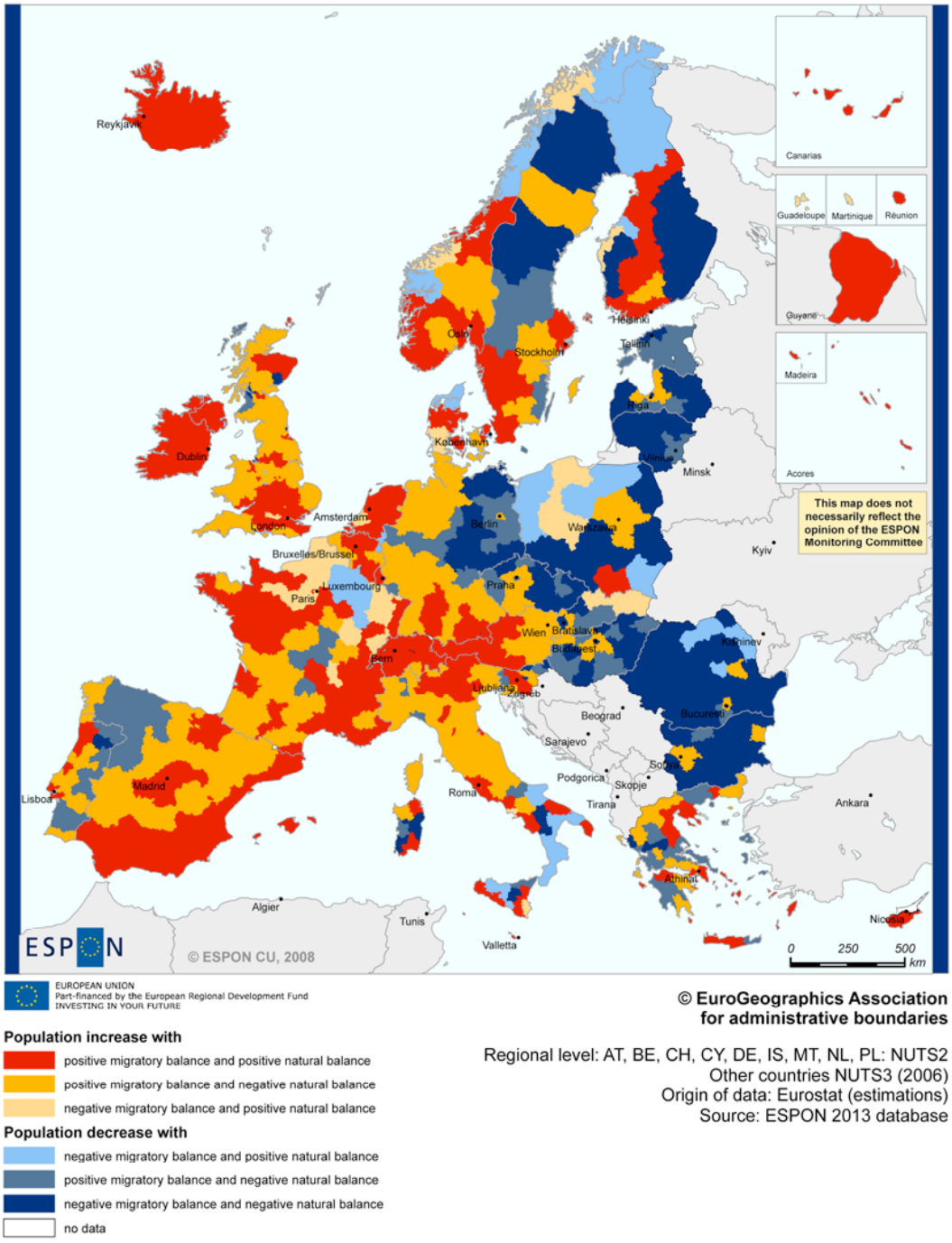
3.1 Previously developed ESPON Typologies

Table 3 Previously developed ESPON Typologies

Typology	Publication	Created	Period	Spatial scope	Regional level	Types
FUA (functional urban area)	ESPON 1.1.1	2003/04	2000	EU 27+4	NUTS 3	3
MEGAs			2001			4
Intra-urban settlement structure			2002			4
NUTS 3 FUAs			2003			6 (19)
Urban-rural	ESPON 1.1.2		1986-01	EU 27+CH		6 (10)
Cross-border functionality and participation	ESPON 1.1.3					
Population development by components	ESPON 1.1.4	2003	1996-99	EU 27+4	NUTS 23	6
Population development by components with share of elderly population						6
Migratory balances by age			1995-00		NUTS 2	27
Depopulation (direct and indirect)			1995-99		NUTS 23	5
Accessibility and GDP	ESPON 1.2.1	2004	2000/01			8
Infrastructure endowment						4
Household telecommunications access and uptake	ESPON 1.2.2		2001-04		NUTS 2	6
Business telecommunications access and uptake						6
Combined household and business telecommunications development						6
Broadband penetration						3
Introduction of Competitive provision						2
Broadband penetration / Introduction of Competitive provision						6
Hazard potential and vulnerability	ESPON 1.3.1	2005	1999-2003		NUTS 3	9
Regions by type of impact of ICTs policies	ESPON 2.1.1	2004	1981/91-2001 (2001-2021)			4
Lagging Regions						3
Regional R&D performance						5
R & D and innovation capacity	ESPON 2.1.2		1997-2000	EU 27+4	NUTS 2	5 (6)
Rural Areas (EU 15 / N 12)	ESPON 2.1.3		1989-2001	EU 27+4	NUTS 3	10/7
Dominant Structural funds spending	ESPON 2.2.1		1994-1999	EU 15		4
Structural Fund spending and (change or) regional performance ranking		2003	1998		NUTS 2	9
Sectoral Economic structure in the Candidate Countries	ESPON 2.2.2	2005	1998-2003	ACC 12	NUTS 3	3
Regional conditions based on potentials and bottlenecks						4
Settlement Structure	ESPON 3.1			EU 27+4		3 (9)
Synthetic typology of joint demographic and economic evolutions	ESPON 3.4.1		1950/54-1996/00	global	countries	5
Synthesis of the regional insertion in the world economy				EU 27+4	NUTS 2	4
Economic typology of European regions	ESPON 3.4.2	2002	(1995-) 2002	EU 27+4	NUTS 23	7 (20)
Population development by components	ESPON Territorial	2008	2001-05			6
Typologies yet to be developed						
Urban / metropolitan regions	Typology Compilation	2009		EU 27+4 + CCs		
Rural regions						
Sparsely populated regions						
Regions in industrial transition						
Cross-border regions						
Mountainous regions						
Islands						
Coastal regions						

In the course of various ESPON projects a large variety of different typologies were developed. By far not all of them are demographic classification, but rather deal with other spatial phenomenon and purposes. Table 3 offers an overview of the previously developed ESPON typologies. Specific demographic typologies (highlighted in Tab. 3) were mainly produced in the course of the ESPON project 1.1.4 "The Spatial Effects of Demographic Change and Migration" (ESPON 2005) and for the ESPON Territorial Observation No. 1 "Territorial dynamics in Europe: Trends in population development" (ESPON 2008b).

Map 1 Population Development by Components, 2001-2005

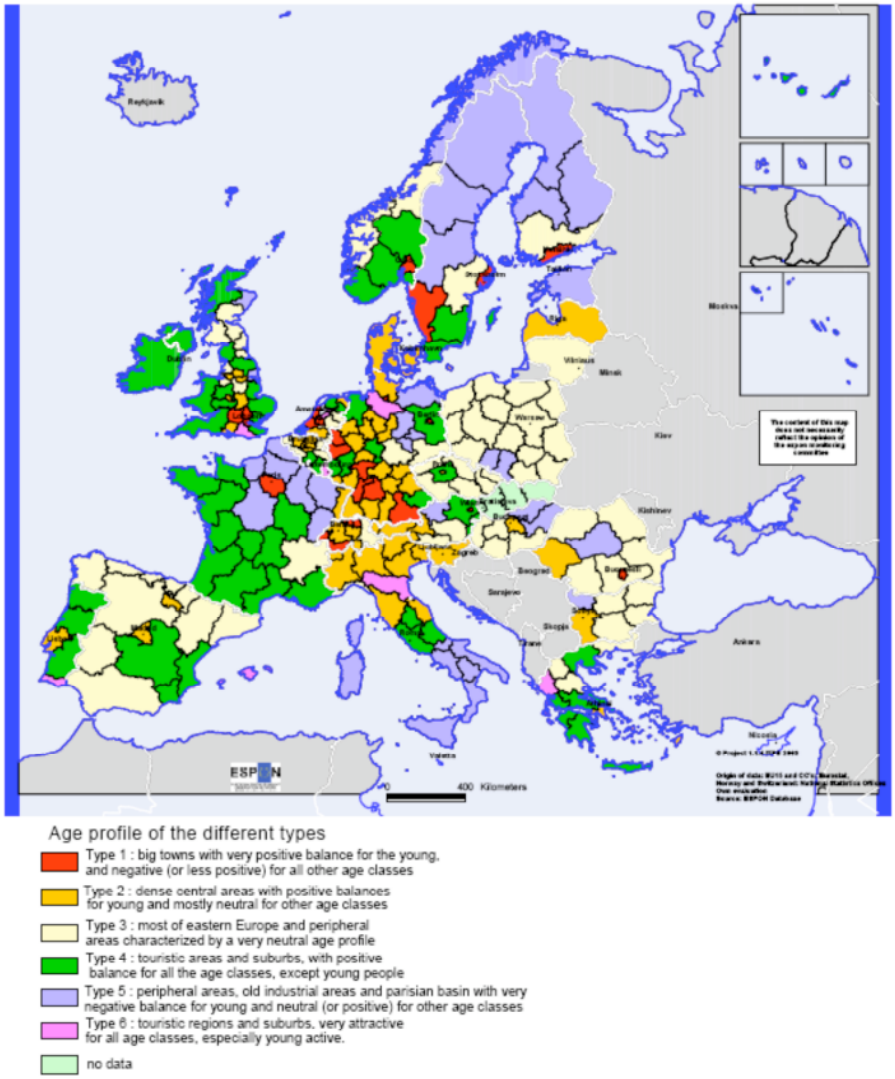


Source: ESPON (2008c:5 – Map 1)

The main objective of the already completed ESPON project 1.1.4 was to describe and analyse the variety of demographic situations in different parts of Europe. In order to classify the regions with respect to the total population development, natural population development and migration, a base typology of six different combinations was constructed, covering the period 1996 to 1999 (ESPON 2005:11f). Sharp thresholds of either positive or negative balances with respect to the three categories determine the six individual types. This meaningful regional classification was later updated for the period 2001 to 2005 (Map 1) and published in the ESPON Territorial Observation No. 1 (ESPON 2008b). Because of the focus on population development, which also plays a prominent role in the analyses DEMIFER is conducting, this particular typology will be further explained and linked to the newly developed demographic typology (see Chapter 4.1).

Another ESPON 1.1.4 typology is based on age and migration profiles (Map 2), illustrating which kind of (functional and geographic) regions are attractive for which age group of migrants.

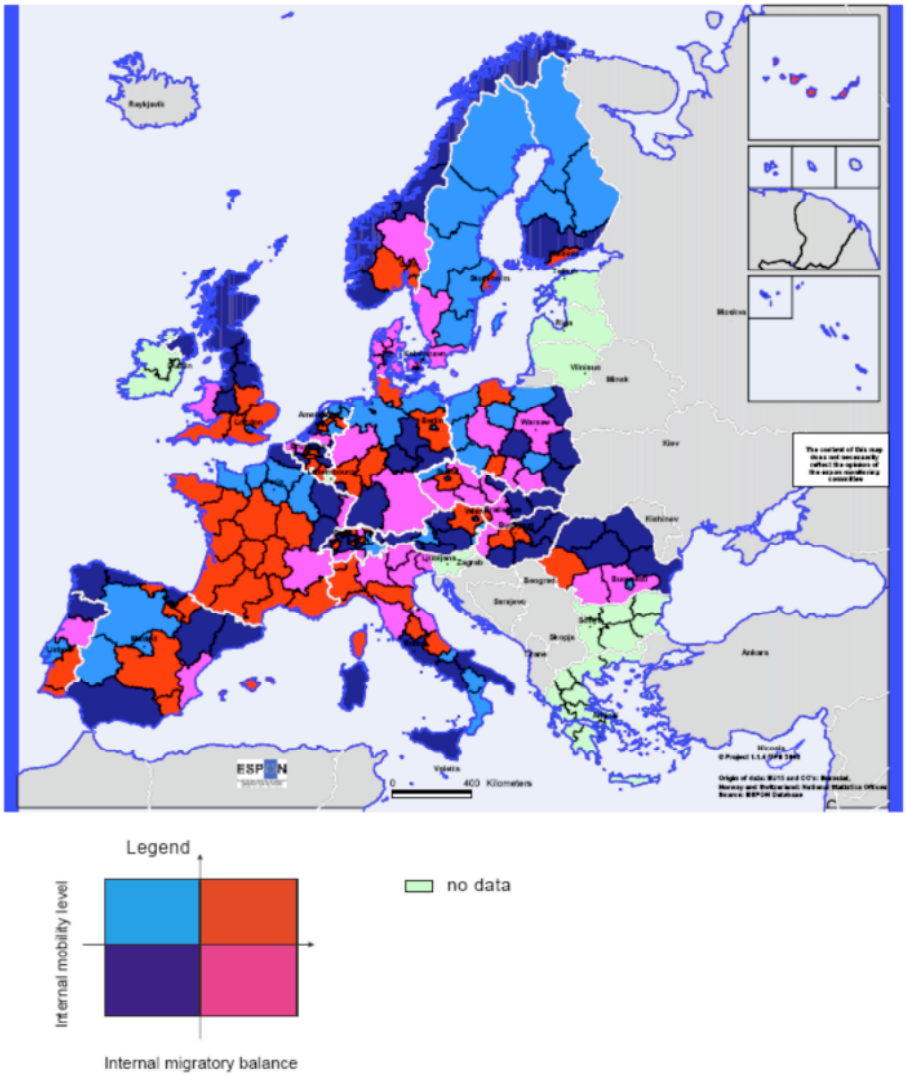
Map 2 Typology of migratory balances by age classes, 1995-2000



Source: ESPON (2005:105 – Map 3.12)

A third demographic typology taken from ESPON 1.1.4 is analysing the level of mobility based on a combination of mobility and migration (see Map 3). In this case, mobility was measured as the sum of inflow and outflow of people in relation to the population size, while migratory movements were split into two categories: net in-migration and net out-migration. The objective of this typology is to distinguish between attractive regions with many movements or other regions with only a few movements (ESPON 2005:106f).

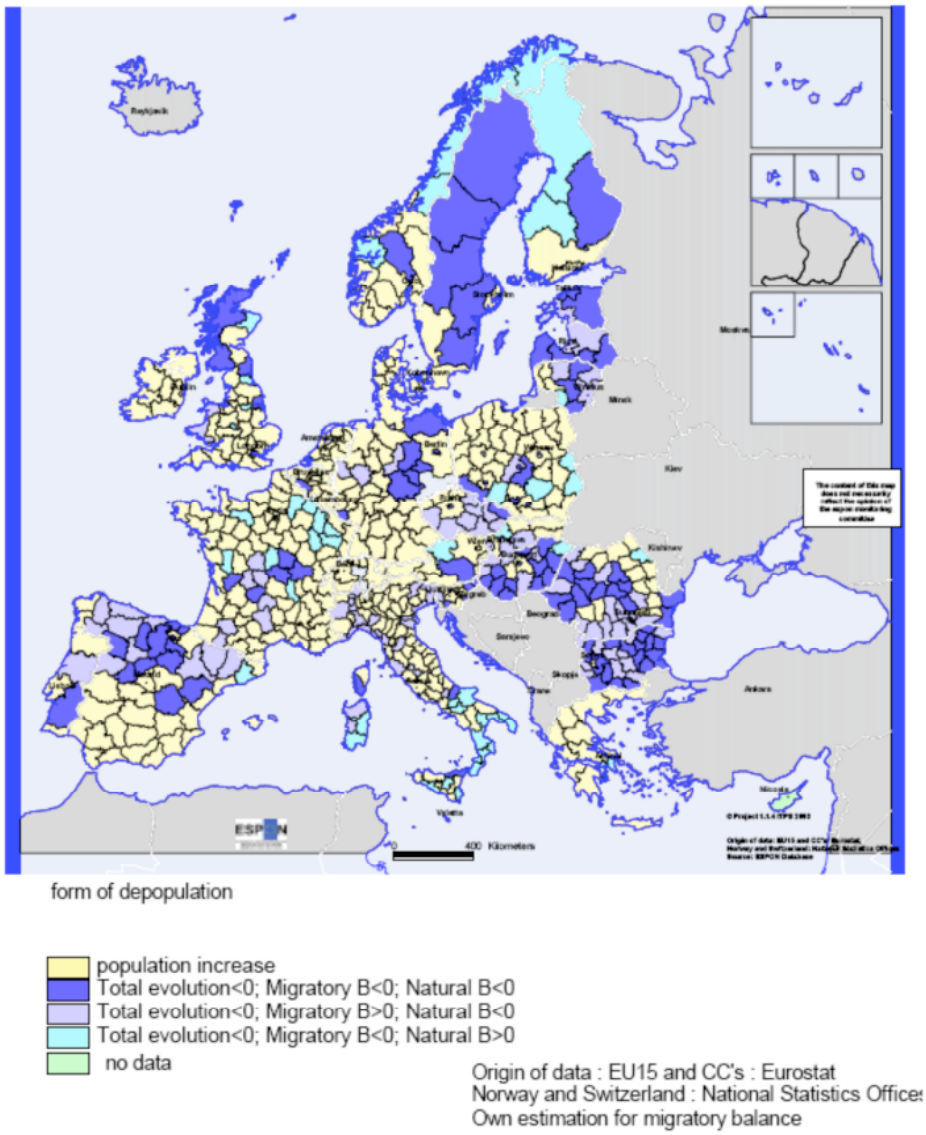
Map 3 Typology crossing mobility and migratory balances, 1995-2000



Source: ESPON (2005:107 – Map 3.13)

Finally, the ESPON 1.1.4 project group also constructed a "first sketch or idea" of a typology highlighting the different forms of depopulation. Map 4 displays all combinations of total population change and the contributions (negative or positive) by the two main components of change – the migratory balance and the natural population change – for regions with population decline (ESPON 2005:157).

Map 4 Typology of Depopulation, 1996-1999



Source: ESPON (2005:156 – Map 4.1)

All these typologies are referring to some kind of population change, be it naturally induced or by migration. The temporal scope of these classifications is set to the second half of the 1990s, besides the later updated typology of population development (Map 1). Because of a change in the NUTS classification, a direct comparability cannot be assumed. This makes it hard to link these valuable concepts to recent regional data and to the newly developed demographic typology, too. However, an attempt to link the typology of population development to the hereafter-presented demographic typology was conducted and produced interesting and confirmative results (see Chapter 4.1.1).

3.2 Input Variables & Output Names

The DEMIFER typology claims to match the demographic status of European regions by 2005. The result should be easy to overview and understand. Therefore the right choice of variables, both by kind and quantity, is a vitally important criterion for the quality of the classification's outcome. With respect to an unambiguous understanding of the result, the naming of the types of regions resulting from the classification is another important task.

3.2.1 Final Cluster Variables

The variables used for the construction of the typology are representing specific demographic characteristics, describing the age structure of the population and the components of population change.

Age Groups

Two of the four variables included into the classification are dealing with proportions of meaningful age groups (by 2005). These age groups – 20 to 39 years and 65 years and older – are not only representing the young adults and the elder population, but also are meeting the peak ages of mobility.

> *"Migration often occurs in conjunction with some transition in the life course, such as entry in the college, a change of job, or retirement. Since these underlying transitions are more frequent at certain ages then at other, pronounced age selectivity can be expected with respect to migration too. Adult migration rates often peak in the young adult ages. A second lesser peak around retirement age has also be-come apparent in the more developed countries. Migration rates during childhood reflect parents' migration."*
> *(PRESTON et al. 2001:208)*

Furthermore, these two age groups are roughly reflecting a generation step, whereas the age group 20 to 39 years matches the prime reproductive age and the share of the age group 65 years and older is an indicator for the stage of ageing.

A high share of elderly is connected with additional expenditures and less revenues for the social system, because of a higher share of economically inactive people. Looking beyond a strictly demographic point of view, the share of the age group 20 to 39 years characterises each region in terms of the younger working age population. In general, a high proportion of young adults ensure that the labour force is not lacking any shortness of supplies. However, if not enough appropriate jobs are available, regions with high proportions of people in their 20s and 30s constitute a pool of potential emigrants, who could be heading to those regions where labour force is scarce. From a strictly demographic standpoint, a high share of young adults means a high share of potential parents. On the contrary, a low share of young adults could lead to labour market shortages, especially in economically dynamic regions with labour-intensive sectors, besides a lack of potential parents in any case. With respect to the challenges associated with population ageing, high proportions of young

adults are a reasonable precaution against eventually unbearable costs for the social system, which is in turn a threat to social equity.

Components of Population Development

The other two variables used in the cluster analysis – i.e. the natural population balance and the net migration rate – represent the population development by components. The natural population balance (per 1,000) indicates the extent of the population increase or decrease based solely on the difference between births and deaths and, by implication, the crude trends in fertility and mortality, too. The net migration rate (per 1,000) indicates a gain or loss of population due to of migration. The aggregate of both variables – i.e. the total population change – decides whether a population is increasing or decreasing by size.

Measured by the annual average over the period 2001 to 2005, these variables are indicating the short-term trend prior to the base year 2005. Using the average of a five-year period comprises the additional advantage of being less sensible for selective fluctuations caused by political measures, e.g. changes in the family policy, or exogenous factors like a global financial crises, which are affecting the demographic or migratory behaviour.

Other potential Input Variables

Apart from these four variables, a whole array of other indicators were considered as potential input variables for the classification, e.g. the share or the growth rate of other particular age groups, and more or other demographic indicators like TFR, life expectancy or dependency ratios. All these other variables were extensively discussed within the DEMIFER project group and a number of different cluster analyses were carried out. The results either did not exhibit a strong enough explanatory power, or the classifications achieved were not as suitable as the result of the elaborated demographic typology (see Chapter 3.3). Nevertheless, most of these potential input variables were used to illustrate the extended demography of the final classification (see Chapter 4).

Especially the choice of the indicator representing demographic ageing – be it the old (65+), the oldest old (75+/80+) or the life expectancy (at birth) – was causing long discussions, fuelled by various arguments. The age group 65+ might be mainly important for pension schemes, which are more nationally determined, while the demand for elderly care, which has a stronger regional component, is more influenced by the share of the oldest old. Finally, the share of the age group 65+ became prevalent, because it is a broad age group including also the oldest old. Furthermore, data used in a cluster analysis should not only be consistent, but should also have the same meaning with respect to all regions included. This does not hold true with respect to the oldest old. Life expectancy varies between 65 years and 82 years across European regions. This span is obviously distorting the meaning of age 75+ or 80+. Indeed, it would have been interesting to apply the concept of "prospective age", but a "remaining life years"-indicator could not be used because it requires a dataset of 1-year age groups (cf. RYDER 1975, LUTZ

et al. 2008, GOLDSTEIN 2009). However, such a data set was not available on NUTS 2 level by the time the classification was produced.

Other potential indicators did not produce suitable results when used as input variables. The TFR, for instance, shows a very low variance on the regional level. Anyway, the "fertility factor" and also the "mortality factor" are represented by the natural population balance, which can be read as the aggregation of CBR and CDR. In contrast to TFR and life expectancy at birth, these crude rates are distorted by the actual age structures of a population. In fact, the distortion factor is definitely desirable, when constructing a classification aiming to address the territorial effects of demographic developments. Such crude rates like births and deaths per 1,000 are highlighting demographic macro effects with respect to impact on particular regions (see also Chapter 4.3.1 and 4.3.2).

Why not more?

The reason why not more input variables were used for the construction of the classification is connected to the availability of a sole indicator for migration. Because migration flows are hard to measure, only the net migration rate was available for the cluster analysis. If more variables would had been used, the process of migration as the main driver of population development in Europe would have been underrepresented in the classification in regard to the weight of each input variable. Anyway, the number of variables used should be as small as possible with respect to a satisfactory representation of the main dimensions of the aims of the classification (cf. Chapter 2.2.1).

3.2.2 Naming the Clusters

The outcome of the final classification resulted in seven types of regions, each type further subdivided into two to four sub-clusters. Only the seven main types are named, while the sub-clusters – produced for an additional quantitative differentiation – have no particular titles. Although naming seven types of regions does not sound like a too complicated task, it is far from being trivial. It needed some rounds of considerations and extensive discussions with many colleagues to figure out which titles appropriately represent the clusters. In doing so, it was important to keep two general principles in mind.

> *"The titles (…) must not offend residents and they must not contradict other official classifications or use already established names." (VICKERS 2006a:153)*

After some rounds of discussions, the impression evolved that it might not be possible to find titles, which would perfectly please everyone involved. Accepting this fact, the process of naming the types of regions focused on short titles, transporting a clear impression of the particular demographic status. Therefore, the target was to strive after demographic (and geographic) connotations with a scope on challenges and potentials affecting the different types of regions.

3.3 Illustrating the Typology of Demographic Status

As a result from extensive cluster analyses we achieved a classification of European regions (Map 5), which is based on the demographic status (2005) and short-term trends (2001 to 2005). The spatial scope is covering the entire ESPON space, i.e. the present 27 EU Member States and the four EFTA countries Iceland, Liechtenstein, Norway and Switzerland (EU27+4). On the regional level NUTS 2 is the focus of this spatial analysis. The only exception is London with two NUTS 2 regions (Inner London/UKI1 and Outer London/UKI2). In the course of the adaption of outlier regions, it proved to be necessary to aggregate these two regions to one NUTS 1 region (London/UKI). Therefore, the typology comprises 286 regions in total: 285 NUTS 2 regions plus one NUTS 1 region. For more information on the assignment process of outlier regions, see Annex 6 – "Assignment of Outlier Regions".

3.3.1 Types of Regions

Map 5 presents the achieved demographic classification based on four variables (the share of the age groups 20 to 39 years and 65 years and older in 2005, as well as the natural population increase and the net migration rate as the annual average of the period 2001-2005). The legend of the map is represented these four variables revealing by minimum, maximum and average value, as well as the number of cases (regions) and the population size in absolute and relative numbers of each type of regions. For an overall comparison the table also includes the respective values of the entire ESPON space.

Sub-types

Following the same methodology as already applied to the main typology (see Chapter 2.3), two to four sub-clusters (i.e. sub-types) of each type of regions were produced for a better quantitative differentiation of the main types. As an exception, there are no sub-clusters for Type 7 consisting of only five regions. The sub-types are explained in the course of the description of the respective main type. Maps of these subtypes (see Annex 2) provide insight into the distribution of these even more homogenous regions.

Explanatory Charts & Additional Information

In the following description of the typology, two different kinds of charts are used to characterise the classification's result. First, the cluster profiles are portrayed by means of radar charts (Fig. 4), featuring the standardised values of each variable used in the cluster analysis. This type of chart enables to identify the deviation of each type from entire ESPON space, which is the mean of the standardised values, visualised by the grey shaded area delimited by the zero-line. In this respect, 0 is marking the mean (i.e. the ESPON space) and a standard deviation is 1 (see also Chapter 2.3).

Second, a bar chart (or candlestick chart) displaying all types simultaneously is used to illustrate the characteristics of the cluster variables and external variables (see e.g. Fig. 5). This kind of chart represents the range of a certain indicator as well as the respective values

of the ESPON space, featuring the minimum and maximum value (bar) and including the particular mean of each type of region (short blue line inside the bar). The black horizontal line across the chart area indicates the overall average value of the ESPON space. Beyond that, a summary of the different indicators characterising the different types of regions (i.e. cluster variables as well as external variables) can be found in Table A5.01 (Annex 5).

3.3.2 Type 1 – Euro Standard

Type 1 – Euro Standard comprises around 28% of all NUTS regions included into the typology (79 from 286) and has a total population of nearly 128 million people, which is more than 25% of the population of the ESPON space. The title "Euro Standard" was chosen, because all four cluster-indicators are displaying values close to the ESPON space average – the variable characteristics per type of region can be gathered best from the cluster profiles (see Fig. 4). Only the age group 20 to 39 years (avg. 25.68%) is slightly below the overall ESPON space average (avg. 27.82%). Although the natural population balance is just positive (avg. +0.01 per 1,000), the total population is increasing due to a predominately positive migratory balance (avg. 3.43 per 1,000). Within this type the variations of the variables – except of the net migration rate – are relatively small (see also Tab. A5.01 in Annex 5).

Geographical distribution

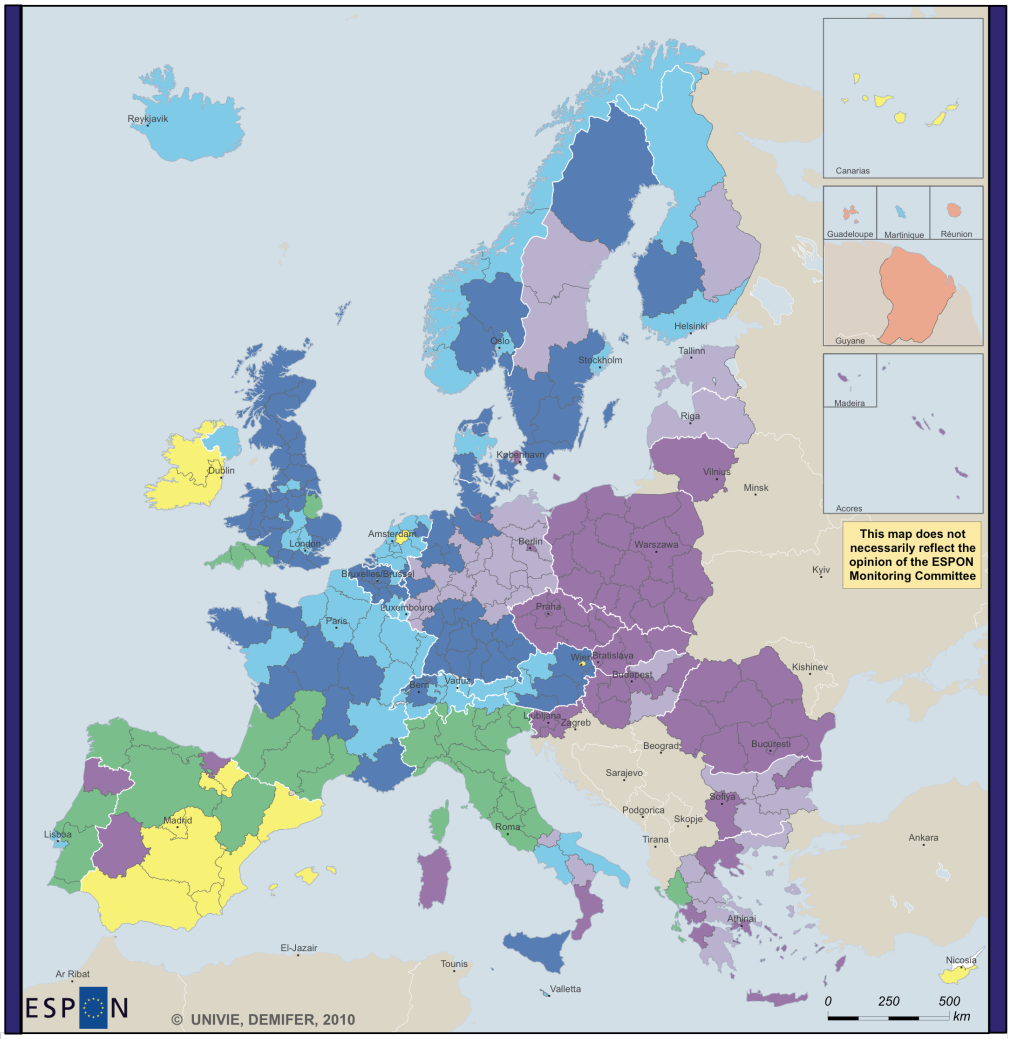
Except for Sicily, this type is a distinct Western and Northern European type, to be found in Scandinavia, the United Kingdom, the Benelux countries, Southern and Western France, some western parts of Germany and also in Switzerland, Northern Italy and in the South East of Austria.

Subtypes

The further subdivision of Type 1 – Euro Standard resulted in four subtypes (Type 11 to 14), with no distinct geographical pattern (see Map A3.01). In terms of a quantitative differentiation, Type 12 and 13 show the highest net migration rates (5.18 and 4.56 per 1,000), whereby Type 12 has a younger age structure with respect to the share of the two age groups used for the cluster analysis. Furthermore the average natural population balance of Type 12 is just positive (0.72 per 1,000), contrary to Type 13 (avg. -1.31 per 1,000). In Type 14, both components of the total population development – the natural population increase and the migratory balance – are not very pronounced, but still positive. Type 11 is getting closest to this type's and also to the overall ESPON space average – covering the South of Germany and Austria, some parts of West Germany, Belgium, the UK as well as Sicily – and can be thus characterised as the "standard of Euro Standard".

Map 5 Typology of the Demographic Status in 2005

Typology of the Demographic Status in 2005



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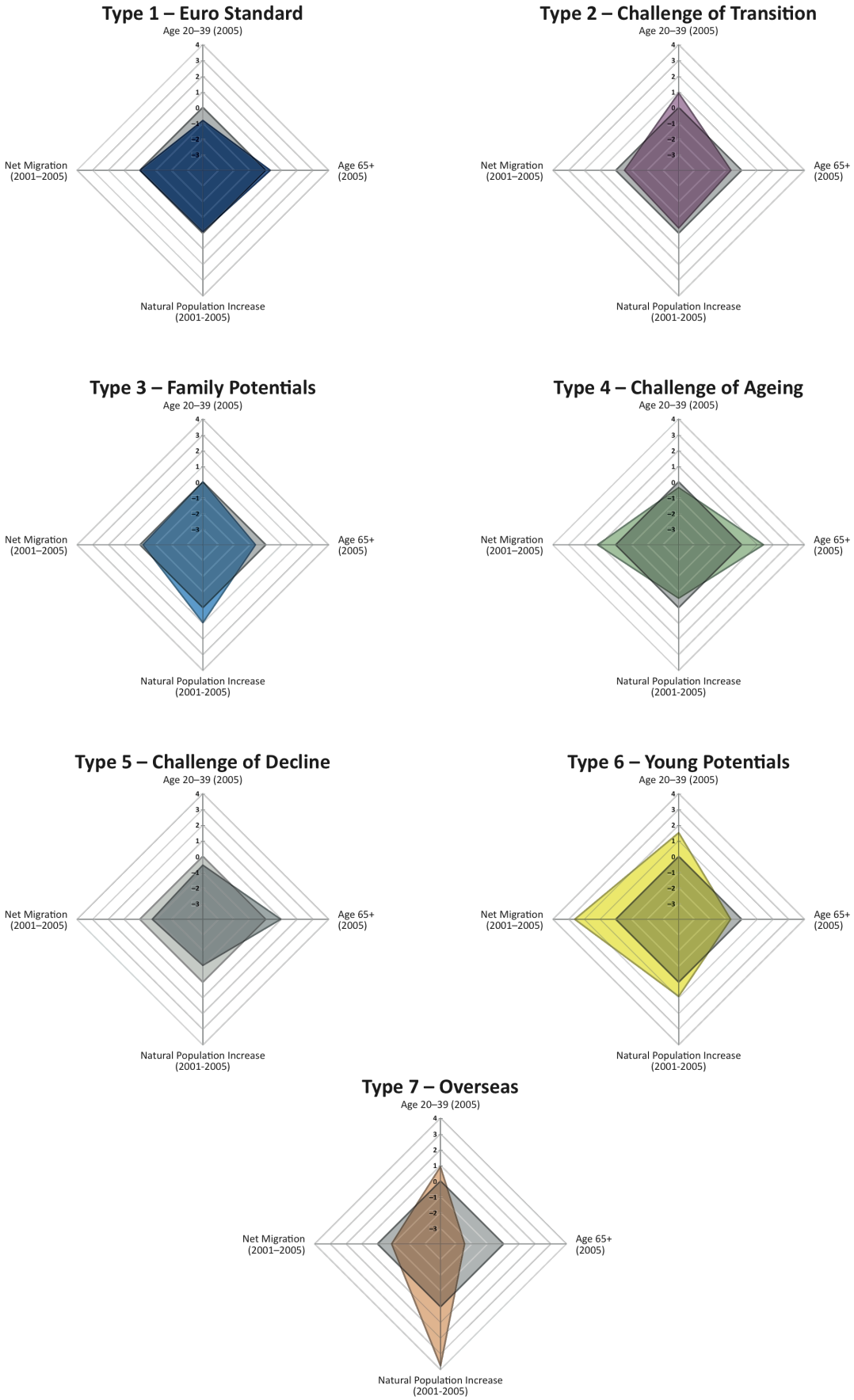
Regional level: NUTS 2, except UKI NUTS1
Source: ESPON 2013 Database 2010
Origin of data: Eurostat, NSIs 2008/09
© EuroGeographics Association for administrative boundaries

					Age Group 20-39 (%)			Age Group 65+ (%)			Natural Population Increase (per 1000)			Net Migration (per 1000)		
					2005						average per annum 2001-2005					
Type	Classification	Cases	Population		avg	min	max	avg	min	max	avg	min	max	avg	min	max
1	Euro Standard	79	127 915 217	25.41%	25.68	22.57	28.72	17.46	15.33	20.30	0.01	-2.67	2.47	3.43	-2.11	9.36
2	Challenge of Labour Force	61	116 767 795	23.20%	30.43	28.33	33.84	14.51	10.60	18.96	-0.78	-4.76	2.89	0.08	-7.35	9.19
3	Family Potentials	55	104 556 600	20.77%	28.15	24.80	36.32	14.57	11.13	16.96	3.72	1.06	9.00	2.12	-3.51	9.59
4	Challenge of Ageing	33	63 838 208	12.68%	26.87	21.52	31.19	20.83	18.51	26.51	-1.74	-6.19	1.43	9.42	4.14	16.99
5	Challenge of Decline	38	50 166 688	9.97%	26.32	21.47	30.04	19.49	15.89	22.55	-3.39	-10.35	-0.59	-1.20	-11.25	3.70
6	Young Potentials	15	38 542 821	7.66%	32.26	29.36	35.86	14.45	8.70	19.03	3.61	-0.15	9.78	17.10	9.96	26.30
7	Overseas	5	1 555 069	0.31%	30.40	27.02	32.55	9.04	3.71	11.81	13.56	8.40	25.28	-1.78	-8.18	9.07
EU 27+4	ESPON Space	286	503 342 399	100%	27.82	21.47	36.32	16.63	3.71	26.51	0.33	-10.35	25.28	3.16	-11.25	26.30

Figure 4 Cluster Profiles



3.3.3 Type 2 – Challenge of Transition

Compared to the ESPON space average, this type of 61 regions with a population of 116.7 million people (23.20% of the ESPON space) features a relatively young age structure due to higher shares of the population in the 20 to 39 age group (avg. 30.43%), and slightly lower shares of the 65+ age group (avg. 14.51%). Although the annual average migratory balance is just positive (+0.08 per 1,000), the total population is stagnating, respectively declining on a low level due to a weak natural population decrease (-0.78 per 1,000). The spectrum of this type includes regions with both positive and negative natural population and migration balance.

Geographical distribution

The title "Challenge of Labour Force" is taking the remarkable high share of young adults into account, which is connected to the relatively high fertility before 1990 in the former socialist countries of Eastern Europe, where this type of regions is prevalent. However, these high rates of fertility were turned upside down to a low fertility regime after 1989. The demographic effect of this abrupt change in fertility behaviour resulted in a bulge in the age structure induced by young adults born before 1989 and aged 15 to 34 years by 2005 (see also Fig. 7 in Chapter 4.2).

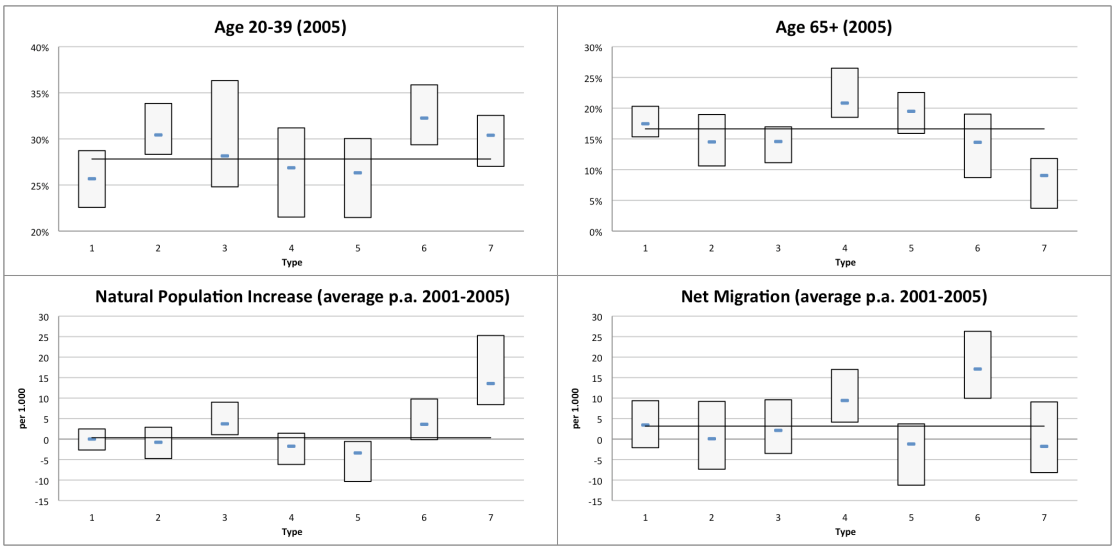
As mentioned above, this type can be found most notably in the New EU Member States (NMS) in Central and Eastern Europe (CEE). Besides that, regions in Western Greece, Southern Italy, on the Iberian Peninsula as well as on the Portuguese islands of Madeira and the Azores, and also some distinctly urban regions in Germany and Denmark (Berlin, Hamburg and Copenhagen) belong to this category.

Subtypes

Type 2 – Challenge of Labour Force is split only into two subtypes, each representing more than 10% of the total population of the entire ESPON space. Type 21 can be differentiated from Type 22 in regard to its lower share of elderly people: on average 13.11% and 16.05% respectively). The natural population balance is slightly positive in Type 21 and negative in Type 22 (-1.83 per 1,000). Looking at the migration balance, the situation is just the other way round and therefore negative in Type 21 (avg. -1.56 per 1,000) and positive in Type 22 (1.89 per 1,000).

Type 21 can be found in large parts of Poland, the Czech Republic, Romania and Slovakia, but also in the North of Portugal, some Greek islands as well as the Danish capitol region with Copenhagen. Type 22 – featuring a positive migration balance – is covering the central Poland, the south-western parts of the Czech Republic, the South of Romania – in each case including the capital region, as well as the Berlin, Hamburg, Slovenia, large parts of Hungary (with Budapest) and Greece (including Athens) and some regions in Spain and in the South of Italy (see Map A2.02).

Figure 5 Cluster Variables per Type of Region



Data source: ESPON 2013 Database

3.3.4 Type 3 – Family Potentials

Around 20% of the population of the ESPON space or 104.5 million people are living in the 55 regions of this type of regions. The demographic characteristics are also very close to the ESPON space average, but can be clearly distinguished from Type 1 – Euro Standard due to its younger age structure and strictly positive natural population increase (see Fig. 5). The title "Family Potentials" is attributed to the combination of these two factors. Compared to the ESPON space average the age group 20 to 39 years (avg. 28.15%) shows higher and the age group 65+ (avg. 14.75%) lower values. The natural population increase (avg. 3.72 per 1,000) is the highest overall, besides Type 7 – Overseas. The migratory balance within Type 3 is varying, but still positive in most of the regions (avg. 2.12 per 1,000), resulting in a noticeable increase of the total population between 2001 and 2005.

<u>Geographical distribution</u>

Except a few occurrences in the South of Europe (in the southern parts of Italy, Malta and the Lisbon region) and the island of Martinique, this type shows a similar geographical distribution compared to Type 1 – Euro Standard and can also be found mainly in Western and Northern Europe: in Scandinavia, the United Kingdom, the Benelux countries, northern and eastern parts of France, Switzerland and Western Austria.

<u>Subtypes</u>

One of the three subtypes of Type 3 – Family Potentials (Type 31 to 33), Type 33 includes only two regions: London and Ile de France (Paris). These two regions, both originally outlier regions (see Annex 6) because of their extraordinary high share of population in the age group 20 to 39 years (avg. 33.35%), can be further distinguished from other Family Potentials subtypes by the significantly positive natural population increase (8.15 per 1,000) and a very low share of elderly people (avg. 12.23%).

The net migration indicator is the most meaningful when differentiating the two other subtypes. Type 31 – to be found in Norway, Finland, in the northern parts of France, the Netherlands, in the UK (Northern Ireland and around London), as well as in parts of Denmark, Switzerland, Austria and Southern Italy – has a positive but weak net migration rate (avg. 0.40 per 1,000). By contrast, Type 32 – including Iceland, Luxembourg, the urban regions of Oslo, Stockholm and Amsterdam, as well as Western Austria, eastern regions of France, parts of Switzerland and the UK (see Map A2.03) – is featuring a strictly positive net migration balance (avg. 4.92 per 1,000).

3.3.5 Type 4 – Challenge of Ageing

This type consists of 33 regions with a population of 63.8 million people (12.68% of the ESPON space population). The title "Challenge of Ageing" is elf-explaining and is, indeed, inspired by the high share of the elder population (avg. 20.83%), which clearly surpasses the ESPON space average (see Fig. 3). Albeit the high share of 65+, the proportion of the population aged 20 to 39 years (avg. 26.87%) is still relatively high. Despite this reasonable share of young adults in reproductive age, the natural population balance is showing an annual average decrease of -1.74 per 1,000 – a value, which is significantly below the ESPON space average. Adding the higher share of elderly people and the resulting higher numbers of deaths, the population of this kind of regions would be already decreasing, if there would not be such a significant positive annual average net migration rate of +9.42 (per 1,000).

Geographical distribution

This type of region can be found nearly exclusively in the South of Europe: in Greek regions (along the Albanian border), Northern Italy, in the northern and eastern parts of Spain, in Portugal, the South of France, but also in the south-eastern regions of England (e.g. Lincolnshire).

Subtypes

Looking at the geographical distribution of the three subtypes, Type 43 – including those just mentioned south-eastern regions in England and some regions in the South of France – is featuring the highest net migration rate (avg. 10.52 per 1,000), but also the lowest share of young adults (avg. 23.79%). The other two subtypes are located exclusively in Europe's South (see Map A2.04). Type 41 comes very close to the previously described Type 43, but can be distinguished by the relatively high share of people between 20 and 39 years (avg. 28.69%). Among all Challenge of Ageing subtypes, Type 42 has the highest share of 65+ (avg. 22.87%). Apart from that, the natural population balance (avg. -3.39 per 1,000) is negative in all Type 41 regions.

3.3.6 Type 5 – Challenge of Decline

These 38 regions, with a population of around 50.2 million people (nearly 10% of the total population in the ESPON space), are facing severe demographic challenges. Due to a negative natural population balance (avg. -3.39 per 1,000) and a negative migration balance (avg. -1.20 per 1,000), the depopulation regions of the ESPON space are concentrated within this type, which is also confronted with the second highest share (behind Type 4 – Challenge of Ageing) of elderly people aged 65 and older (avg. 19.49%).

Geographical distribution

Besides Eastern Germany, this type also includes peripheral regions of Scandinavia and some parts of Western Germany, Southern Italy and Greece and is covering Central and Eastern European regions in Bulgaria, Hungary as well as Latvia and Estonia.

Subtypes

The Challenge of Decline regions can be differentiated into four subtypes (51 to 54), whereas Type 53 and 54 can be found exclusively in Bulgaria (see Map A2.05). Severozapaden in the Northwest of Bulgaria is the only Type 54 region and is featuring a considerable population decline due to distinctly negative development of both components of population change: a natural population decrease of -10.35 per 1,000 and a negative annual net migration rate of -11.25 per 1,000. Furthermore the proportion of elderly people (21.37%) is clearly above the ESPON space average (16.63%) and the share of the age group 20 to 39 (23.93%) is one of the lowest in the ESPON space. The other three Bulgarian Type 5 regions (i.e. Type 53) also have a negative natural population and migratory balance, but to a lesser extent (-5.44 and -9.37 per 1,000). Most notably for Type 53, the share of people aged 65+ (avg. 17.14%) is just half a percentage point above the ESPON space average, and hence relatively low with respect to the other subtypes of this type of regions.

Together, Type 51 (nearly 30 million people) and Type 52 (15.7 million people) are representing around 11% of the ESPON space population. Type 51 covers the entire East of Germany except of Berlin and Leipzig, as well as parts of West Germany and also peripheral regions in Sweden and Finland. Type 52 is also affected by population decline due to a negative development of both components of population change: an average natural population decrease of -5.44 per 1,000 and a negative migratory balance of -1.20 per 1,000. Furthermore the share of the age group 20 to 39 years (avg. 24.69%) is relatively low compared to the (already low) overall average of Type 5 (26.32%). The age structure of Type 53 – to be found in Estonia, Latvia, parts of West and East Germany (Leipzig), Hungary, Southern Italy and large parts of Greece – is very close to the overall average of Type 5. Although the natural population balance is negative in all 17 regions of Type 53, this type's total population development is only slightly negative, due to a positive average net migration rate of 0.83 per 1,000.

3.3.7 Type 6 – Young Potentials

This type, consisting of 15 regions and representing 7.66% of the ESPON space population, can be characterised by a relatively young age structure and a consistently positive population development of both components: a positive natural population development and a positive net migration balance. The age groups 20 to 39 years (avg. 32.26%) and 65+ (avg. 14.45%) clearly show higher respectively lower proportions compared to the ESPON space average (see Fig. 5 as well as Map A1.01 and A1.02). The prevailing population increase of this type of regions is driven by an above average natural population increase (avg. 3.61 per 1,000) and the highest positive net migration rates (avg. 17.10 per 1,000) overall (see also Fig. 5).

Geographical distribution

Apart from the Republic of Ireland, Cyprus, Vienna and the Flevoland region, this type can be found on the Spanish mainland and islands (Canaries and Baleares).

Subtypes

Type 6 comprises three subtypes (Type 61 to 63 – see Map A2.06), whereby Type 63 (Ireland, Flevoland and Cyprus) is showing the lowest share of the population 65+ (avg. 10.90%) and the highest natural population increase (7.14 per 1,000). Type 62 contains only Spanish regions (Madrid, the islands and other regions at the East Coast) and features the highest share of the age group 20 to 39 years (avg. 34.39%) and the highest net migration rate (avg. 22.24 per 1,000) within Type 6. The third subtype (61), including the remaining Spanish Type 6 regions as well as Vienna, can be distinguished from the other subtypes by the relative high share of people aged 65+ (avg. 17.09%, i.e. just above the ESPON space average) and the relatively low natural population increase (avg. 1.15 per 1,000).

3.3.8 Type 7 – Overseas

This special type of only five regions is including only regions, which are located outside of the European mainland (continent): the French overseas departments, as well as the Spanish exclaves of Ceuta and Melilla. Compared to the other six types, this category features significantly different and thus hardly comparable demographic characteristics with very low shares of elderly people (9.04% aged 65 years and over), as well as a very strong annual average natural population increase between 2001 and 2005 (13.56 per 1,000). A further quantitative differentiation within Type 7 would make no sense, because of the marginal population size (1.5 million people or 0.31% of the total population of the ESPON area), the heterogeneity within this type and, above all, the small amount of cases (five regions).

3.4 Geographical Pattern

Referring to the map of the typology of the demographic status (Map 5), some geographical pattern can be revealed. The regions of Type 1 – Euro Standard and Type 3 – Family Potentials, both featuring values close to the ESPON average in respect to the cluster variables, are concentrated in northern and central-western parts of the ESPON territory. With respect to the combined population of 46% of the ESPON space population, these two types of regions constitute the demographic "centre of gravity" by means of population size. Both types of regions experience a total population increase, driven by a positive migratory balance, especially in the case of Type 1 – Euro Standard.

Apart from that, two distinctive Eastern European types, including a third of the ESPON space population, can be distinguished: Type 2 – Challenge of Labour Force (also appearing in Southern Europe and some urban regions like Berlin, Hamburg and Copenhagen) and Type 5 – Challenge of Decline, which also includes peripheral regions of Sweden, Finland and large parts of Greece. Differentiating these two types of regions, Type 2 rather allegorises the regions with potentials featuring a younger age structure and a stagnating population development, whereas Type 5 can be characterised by an older than average age structure and a pronounced population decrease resulting in regions challenged by depopulation.

The regions covered by Type 4 – Challenge of Ageing and Type 6 – Young Potentials, together around 20% of the total population of the ESPON space, are mainly located in the south-western parts of Europe: on the Iberian Peninsula, Southern France, Northern Italy, as well as Ireland, some parts of England, the Flevoland, Vienna, Cyprus and the Greek Ipeiros region. Both types show strong positive net migration gains and overall population increases, which makes them demographic growth regions. Although increasing by size, a high share of elderly people coins the population of Type 4 – Challenge of Ageing. By contrast, Type 6 – Young Potentials is featuring a pronounced young age structure.

Focussing on the European core and periphery, the "European Pentagon area" is stretching mainly across regions of Type 1 – Euro Standard and Type 3 – Family Potentials, but is also covering Type 4 – Challenge of Ageing regions (Lombardia) and even some Type 5 – Challenge of Decline regions (in central-western Germany).[2] The geographical periphery of Europe stretches over Type 2 – Challenge of Labour Force in Eastern Europe and at the southern edges of the ESPON space, and Type 5 – Challenge of Decline regions of Scandinavia and the Baltic States).

[2] The "European Pentagon" is a spatial term, describing the larger geographical zone of global economic integration, roughly defined by area delimited by the metropolises of London, Paris, Milan, Munich and Hamburg. This zone offers strong global economic functions and services, which enable a high-income level and a well-developed infrastructure (EC 1999:20).

A Question of Scale

Obviously, any spatial pattern is depending on the scale. Acknowledging the fact that the scale of this analysis is the NUTS 2 level, the resolution is clearly too low to detect smaller scaled spatial patterns like urban areas or coastal regions. Focussing on a wider scale, the demographic patterns drawn at the level of nation-states are also roughly reflected at NUTS 2 level. Indeed, demographic behaviour and thus demographic characteristics are strongly affected by political, social and economic systems of nation states. However, as the analysis of regional demographic indicators reveals (see Maps in Appendix 3), and as confirmed by the demographic typology, the existence of a wide regional heterogeneity cannot be questioned.

3.5 The Demographic Classification – A Brief Summary

The typology of 286 European NUTS 2 regions reveals seven types of regions of distinctive demographic characteristics. Type 1 "Euro Standard" is relatively close to the ESPON space average in respect to the variables used for this classification. The demographic profile shows a stagnation of the natural increase, but a positive net migration. The second type "Challenge of Labour Force" can be characterised by its high share of young adults, generating a challenge to bring and establish these young people into the labour force. The title of Type 3 "Family Potentials" refers to the relatively young age structure and the high natural population increase between 2001 and 2005. Type 4 "Challenge of Ageing" can be distinguished from the others by a high proportion of people aged 65 years and older. It also features a slightly negative natural population balance and a strong in-migration surplus. The title of Type 5 "Challenge of Decline" refers to a negative population development, driven by a negative natural population balance as well as a negative net migration rate. Together this leads to a significant population decrease coupled with population ageing. Type 6 "Young Potentials" can be characterised by a young age structure and a strictly positive population development of both components: a positive natural increase and a positive net migration. The title of Type 7 "Overseas" reflects the geographical position of these five regions, which are all situated outside of the European mainland.

Furthermore, the typology reveals spatial pattern with respect to the geographical distribution of the different types of regions, i.e. distinctive Northern and Western European types (Type 1 and 3), Eastern European types (Type 2 and 5) and Southern European types (Type 4 and 6) as well as a non-European mainland type (Type 7). Beyond that, the classification demonstrates that national borders do not ultimately determine demographic characteristics. Demographic behaviour is obviously affected by people's view of live, which in turn is influenced by a bunch of political, social, economic and, last but not least, individual factors. And all of these factors do have a strong regional impact.

4 Demographic Illustration of the Classification

For a further illustration of the just presented demographic typology, the resulting types of regions will be explained by external demographic indicators – i.e. variables that are not directly included into the cluster analysis. First of all, these indicators refer to the typology by addressing the two components of the classification: on the one hand, the various paths of population development and, on the other hand, the variations in the age structure of the different kinds of regions. Furthermore, this demographic analysis responds to the three main processes in demography (fertility, mortality and migration) and highlights the demographic challenges with respect to low fertility, population ageing and the size of the labour force.

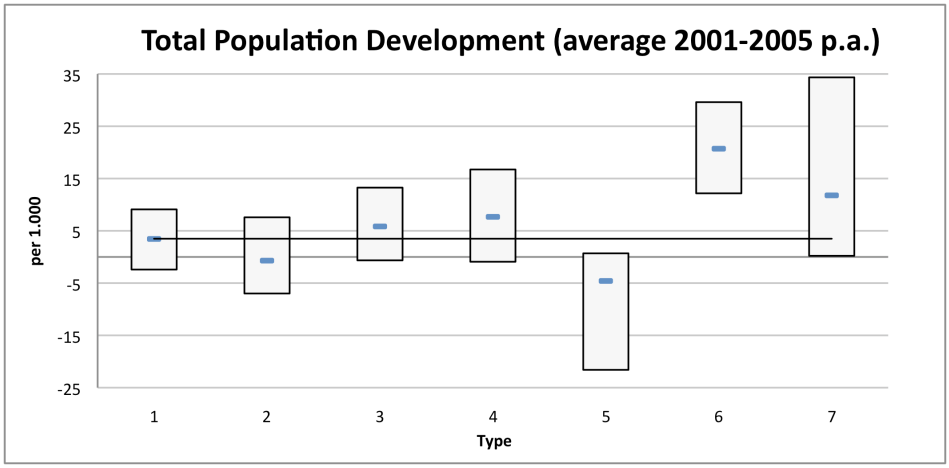
Additionally, an extensive collection of maps (see Annex 1-5) and an overview-table of the demographic indicators per type (Tab. A5.01 in Annex 5) shall provide visual and quantitative support for the understanding of this extended demographic illustration of the typology.

4.1 Population Development

The total population development (i.e. the change of a population's size between two points in time) can be separated into two components. On the one hand, the natural population increase, indicating a population increase or decrease based solely on the difference between births and deaths. On the other hand, the net migration rate as the difference between the total population change and the natural population change in a given year – or in this case as the annual average change over the period 2001 to 2005. To keep these indicators of population development comparable, they are measured in each case per 1,000 inhabitants.

Both components of population development, the natural population increase and the net migration rate, were used as input variables for the cluster analysis (see Chapter 3.2.1). The aggregated indicator "total population development" will be examined with respect to the demographic typology (see Fig. 6 and also the Map A3.01 in Annex 3).

Figure 6 Total Population Increase per Type, average p.a. 2001-2005



Data source: ESPON 2013 Database

The total population development (2001 to 2005) of all 286 regions included in the cluster analysis results in an average annual increase of 3.49 (per 1,000) – indicated by the horizontal line in Figure 6. The average population increase of Type 1 – Euro Standard (avg. 3.44 per 1,000) comes very close to the overall ESPON space average. During this period the population size of Type 2 – Challenge of Labour Force was slightly declining (avg. p.a. -0.71 per 1,000).

Both, Type 3 – Family Potentials and Type 4 – Challenge of Ageing, were experiencing an average annual population increase of 5.84 and 7.67 per 1,000 between 2001 and 2005, which is clearly above the ESPON space average. In the case of Type 3 – Family Potentials, a natural population increase and a positive migratory balance drive the prevailing population gains. By contrast, Type 4 – Challenge of Ageing is featuring a negative natural population balance and the overall population increase is hence the result of a strong positive net migration rate (cf. Chapter 3.3.5).

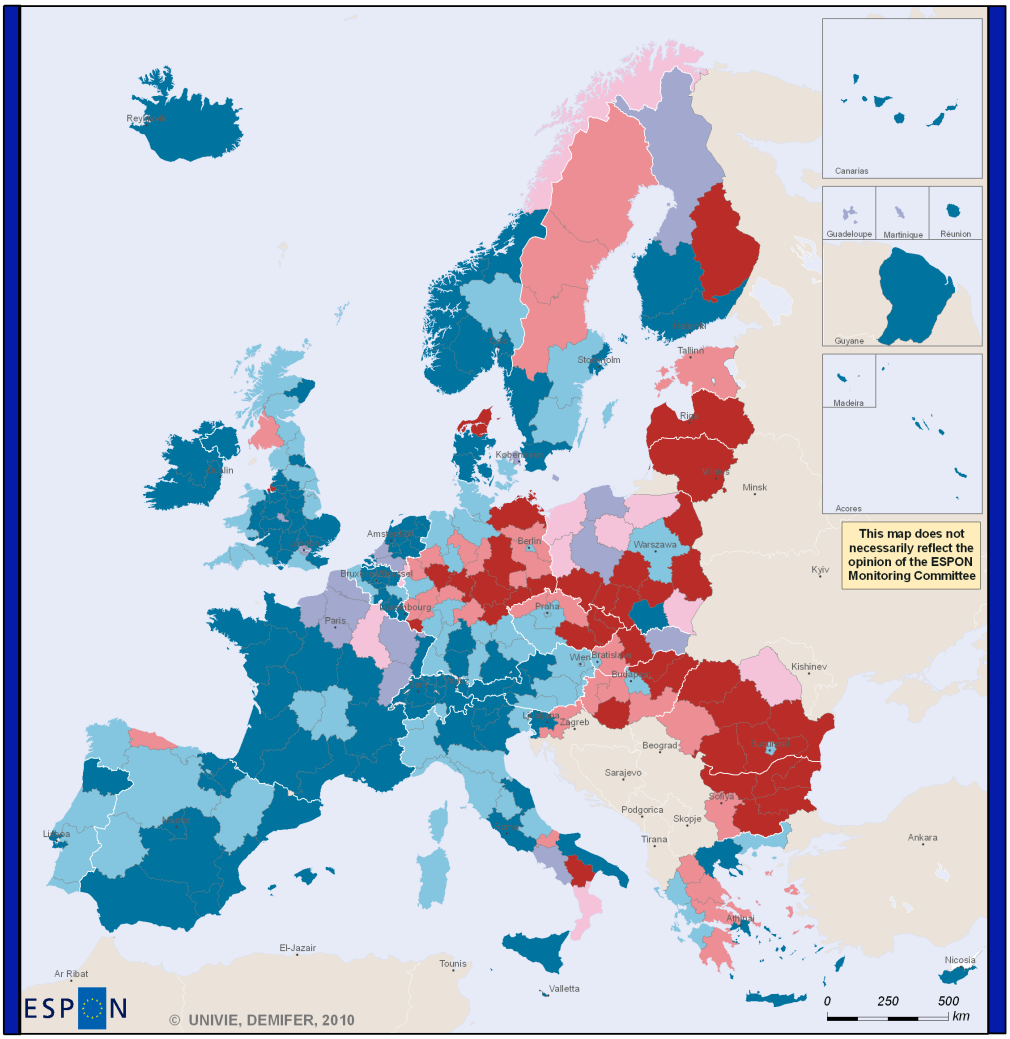
In the course of the period 2001 to 2005, the population of Type 5 – Challenge of Decline was declining by -4.59 (per 1,000) per year. The figures of Type 5 regions of are ranging from -21.60 per 1,000 (in the Bulgarian region of Severozapaden – i.e. Subtype 54) to +0.69 per 1,000 in Bremen. Type 6 – Young Potentials is presenting the opposite picture, featuring the strongest annual average increase of the total population (avg. 20.71 per 1,000), next to the rather atypical Type 7 – Overseas.

4.1.1 Typology of Population Development

As mentioned before (in Chapter 3.1), a typology of the components of population development for the period 1996 to 1999 was already developed for the ESPON 1.1.4 project "The Spatial Effects of Demographic Change and Migration" (ESPON 2005:66 – Map 3.2) and was recently updated for the period 2001 to 2005 (ESPON 2008b:7 – Map 1). This typology distinguishes six types of regions (on NUTS 3 level) depending on the question, whether the total population growth, the natural growth (births minus deaths) and the net migration (in-migration minus out-migration) were positive or negative.

Map 6 Typology of the Population Development 2001-2005

Population Change by Main Components 2001-05



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Regional level: NUTS 2
Source: ESPON 2013 Database 2010
Origin of data: LFS, Eurostat 2009
© EuroGeographics Association for administrative boundaries

(X) = number of regions per category

Population increase
- Positive Migration and Natural Change (113)
- Positive Migration and Negative Natural Change (72)
- Negative Migration and Positive Natural Change (22)

Population decrease
- Positive Migration and Negative Natural Change (32)
- Negative Migration and Positive Natural Change (10)
- Negative Migration and Natural Change (39)
- no data

Taking advantage of both, the straightforward expressiveness and applicability of this demographic classification, the typology of population development was adapted to NUTS 2 level for the period 2001 to 2005 (see Map 6) in order to link it with the newly developed typology of the demographic status.

Table 4 Crosstabulation of Typologies (Demographic Status & Population Development)

Crosstabulation of Typologies Demographic Status (2005) & Population Development (2001-2005)								
		Population Development						
	Type	1	2	3	4	5	6	Total
Demographic Status	1	39	33	0	4	1	2	79
	2	10	12	4	8	7	20	61
	3	40	0	13	0	2	0	55
	4	8	24	0	1	0	0	33
	5	0	2	0	19	0	17	38
	6	14	1	0	0	0	0	15
	7	2	0	3	0	0	0	5
	Total	113	72	20	32	10	39	286

When comparing both typologies (Tab. 4), nearly half of all Type 1 - Euro Standard regions (39 from 79) are matching the "double positive" Type 1 of the typology of population development, i.e. areas with population growth through both positive natural population and migration development (see Map 6). Another 33 Euro Standard regions (Type 1) can be assigned to Type 2 with respect to the population development – i.e. population growth by means of a positive migratory balance, although the natural population is decreasing. Only 7 of 79 Euro Standard regions (Type 1) are matching the negative population development Types 4 to 6 and have to bear a decline of the total population.

Type 2 – Challenge of Labour Force appears to be a very heterogeneous type when it comes to the components of population development. Its regions are sprawling over all six types of the classification of population development, albeit a third (20 of 61 regions) are in line with the "double negative" population development type – i.e. negative natural population and migratory balance. Apart from that, more than 40% of all Challenge of Labour Force regions (i.e. 26) have population increases, and 10 of these regions with a positive population balance are even matching the "double positive" type.

Family Potential regions (Type 3) offer a more distinctive picture, with all but two regions featuring a population increase. The picture becomes even clearer when realising that more than two thirds of the regions (40 out of 55) can be declared as "double positive". Just like Type 3, all but one Type 4 – Challenge of Ageing regions are experiencing a population increase, driven by a clearly positive net migration rate. It is not too amazing, that 24 of 33 Challenge of Ageing regions are matching Type 2 of the population development typology – i.e. population increase with positive

migratory and negative natural population balance. Compared with Type 3 and 4 of the demographic typology, Type 5 – Challenge of Decline is showing the opposite characteristics when it comes to the components of population development with 36 of 38 regions facing population decline. In fact, 17 of these regions are matching the "double negative" population development Type 6.

Young Potentials regions (Type 6) are nearly entirely absorbed by the "double positive" Type 1 of the population development typology. Only one Type 6 region (Vienna) has a slightly negative natural population balance, relegating this region to Type 2 within the typology of population development – i.e. population increase with positive migratory and negative natural population balance. Two of the five Overseas regions (Type 7) can be classified as "double positive" with respect to total population increase. Although the three other Type 7 regions do feature a negative migratory balance, the populations are still increasing due to pronounced positive natural population balances.

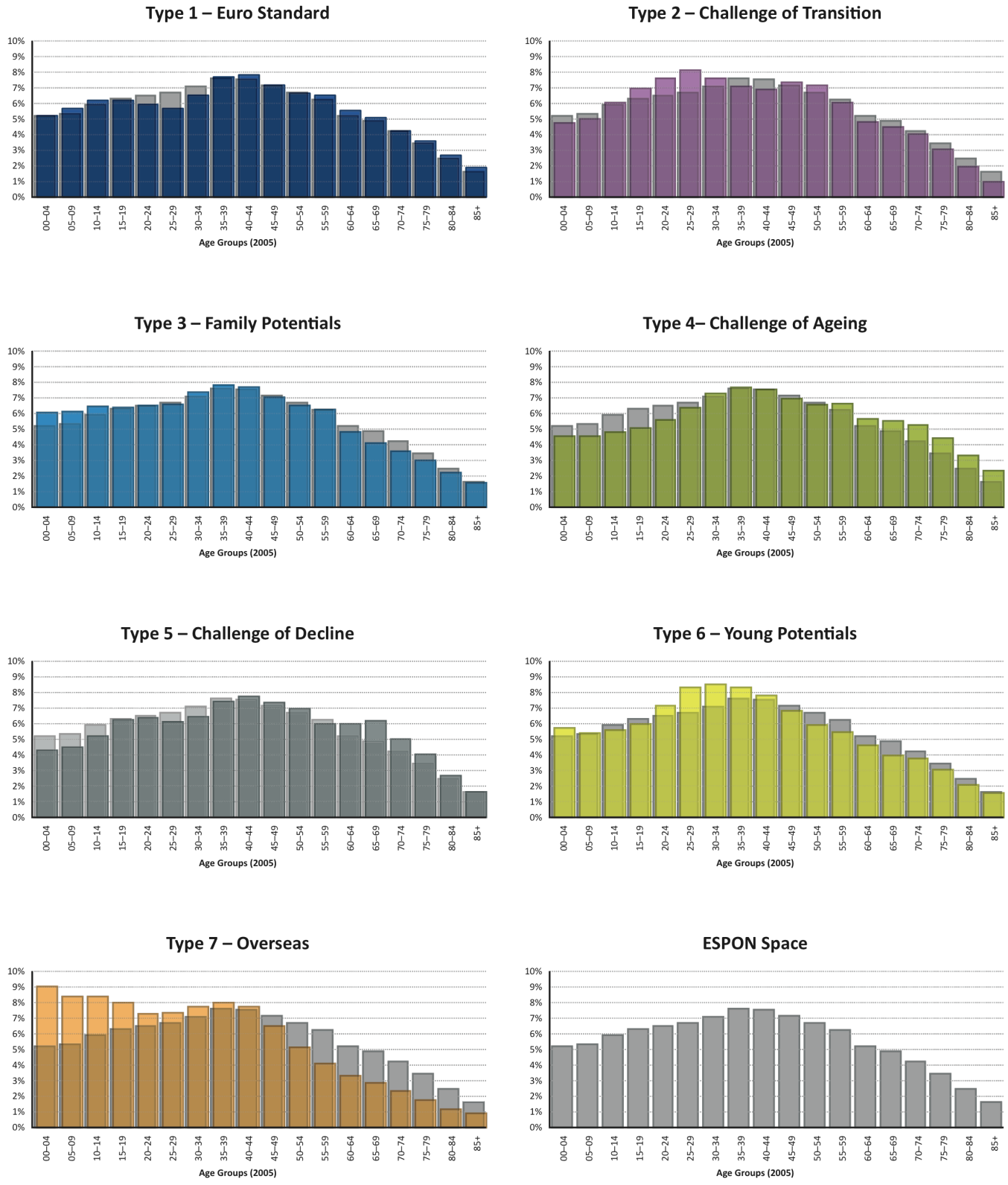
In a nutshell, five of seven types of regions emerging from the demographic typology can be roughly assigned to the positive types of the typology of population development. Only Type 5 – Challenge of Decline had a predominately negative population development during the period 2001 to 2005. The regions of Type 2 – Challenge of Labour Force must be rated as ambivalent with respect to the components of population development. Generally speaking, the vast majority of the ESPON space regions (205 of 286) are featuring a positive population development, whereas 113 regions are so-called "double positive" with respect to both components population development. All together, only 39 regions – i.e. not even 15% of all NUTS 2 regions – are "double negative" and thus affected by a natural population decrease as well as a negative net migration balance. All but two of these "double negative" regions must be ascribed to the two distinctive Eastern European types of regions: Challenge of Labour Force (Type 2) and Challenge of Decline (Type 5).

4.2 Age Structure

Apart from the components of population development, the age structure of a population constitutes the second pillar of input variables for the demographic typology, expressed by two significant age groups: 20 to 39 years and 65 years and older (cf. Chapter 3.2). Consequently, the entire age structure of all seven types of regions shall also be discussed by means of 5-year groups.

The most common way of representing an age structure is a "population pyramid". Because the typology of the demographic status does not explicitly distinguish between male and female population – as population pyramid's do, hereafter a slightly modified form will be used to represent the age structure. Figure 7 portrays the age structures of the seven types of regions in comparison to the age structure of the entire ESPON space (depicted by light grey bars) by depicting the share of all 5-year age groups up to 85 years and older.

Figure 7 5-year Age Groups per Type, 2005.



Data source: ESPON 2013 Database

In order to stress the demographic model of a stable population – i.e. a population with an invariable age structure and a fixed rate of natural increase – the shape of a corresponding population pyramid would look like a pillar. In the case of the representation in Figure 7, it would be a flat horizontal line reaching from the outer left edge of the chart (i.e. from the youngest age group) to an age of around 60 years and would be narrowing only at the very right side as people die of old age (EC 2008a:9).

The age structure of the entire ESPON population (Fig. 7; bottom right) can be read as a bow with an apex at the age group 35 to 44 years, representing the baby boom of the 1950s and 60s. Comparing this structure to the pronounced Northern and Western European Type 1 – Euro Standard, the baby boom bulge is even more pronounced due to the weaker succeeding cohorts (aged 20 to 34). Besides that, Type 1 – Euro Standard features an age structure very similar to that of the entire ESPON space.

The age structure Type 2 – Challenge of Labour Force clearly differs from the ESPON space structure, because of the lower proportion of the young (10 years and younger) and older population (55 years and older). This distinctive Central and Eastern European type is featuring age groups between age 45 and 54, i.e. the cohorts born after World War II, and 15 to 34 years, i.e. the last strong birth cohorts before the fall of the Iron Curtain, which are clearly stronger than the corresponding age groups of the entire ESPON space. However, the age groups in between (age 35 to 44) are less pronounced. This could be either explained by the demographic echo effect caused by the weaker cohorts of their parents (age 55 and older), or by strong out-migration of these selective age groups – or by a combination of both.

Type 3 – Family Potentials is coming closest to the age structure of a stable population. Only the age groups 30 to 49 years (including the baby boomers) are rising above the virtual horizontal line, which would mark a perfectly stable population. However, this type's age structure is closely matching the structure of the entire ESPON space population in the age group 20 to 59 (i.e. the prime age of the labour force). Younger and older age groups below 20 and above 60 years reveal a favourable weighting, as the younger population's proportion is above the ESPON average, while the share of elderly people is well below. By contrast, Type 4 – Challenge of Ageing is showing an inverted age distribution. The share of the younger population below 30 years) is clearly underrepresented, while the proportion of the older age groups (55 years and older) is significantly higher in comparison to the ESPON space age structure.

A very diversified age structure can be observed for Type 5 – Challenge of Decline, a type of regions, which can be mainly found in former Eastern Bloc regions and peripheral regions of Northern and Southern Europe. Compared to the ESPON space age structure, the age groups 15 years and younger (i.e. those born after 1989) and 25 to 34 years are clearly underrepresented. Taking this type's strictly negative migratory balance into account (cf. Chapter 3.3.6), one could assume that these young

adults are missing because of emigration. The only age group of this type of regions, which is overrepresented with respect to the age distribution of the entire ESPON space population, are elderly people (of 60 years and older).

Type 6 – Young Potentials is showing considerable high shares of people aged 20 to 44 years and below 5 years. Contrary to Type 2 and Type 5, this bulge of young adults (or young workforce) seems to be the result of significant immigration to this type of regions (see also Chapter 4.3.3 and 5.2.1). The high share of children below 5 years could be interpreted as the demographic echo to the high proportion of young adults, i.e. their offspring.

The age structure of Type 7 – Overseas is completely different in regard to the "continental" types of regions (Type 1 to 6). Driven by a strong natural population increase, the youngest age group (below 5 years) is showing the highest proportions. Indeed, each age group is stronger compared to the subsequent age groups of higher age, apart from the very mobile age group 20 to 34 years. This results in a very low share of people older then 45 years.

4.3 Demographic Indicators

After discussing the population development by components as well as the age structure by type of region, the next step of this analysis is focussing on the three main population processes (fertility, mortality and migration), which are determining the previously discussed age structure (Chapter 4.2), as well as the population development in general (Chapter 4.1).

4.3.1 Fertility

We consider two indicators for analysing the fertility of the different types of regions: the total fertility rate (TFR) in 2005 and the annual average crude birth rate (CBR) for the period 2001 to 2005 – see Figure 8 and also Map A3.02 and A3.03.

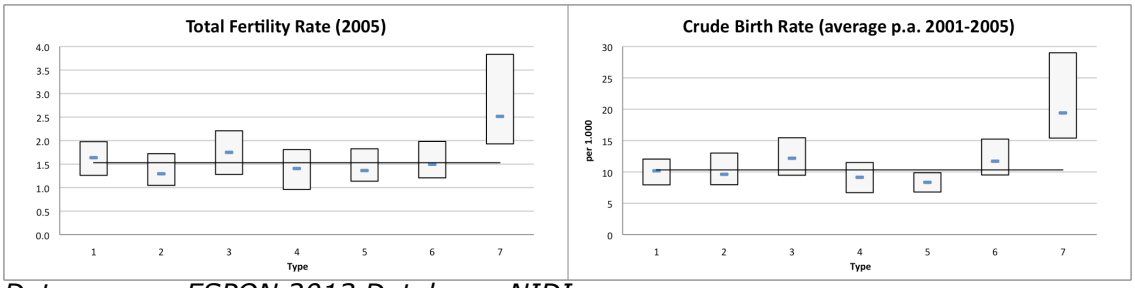
> *The period TFR measures the average number of children who would be born to a hypothetical cohort of women who survive to the end of their reproductive period and who bear children at each age at the rate observed during a particular period.*[3] (PRESTON et al., 2001:95)

Contrary to the CBR, which is an empirical measure formulated as the births per 1,000 inhabitants, the TFR is a hypothetical indicator weighted per woman aged 15 to 49 years. In this respect, the TFR is more responsive to fertility changes like postponements of births. By contrast, the CBR might be distorted by the actual age structure of a population, giving more importance to younger age groups (cf. PRESTON et al. 2001:59).

[3] Generally, and also in this case, the reproductive period of a woman is determined by the age 15 to 49 years.

Because of that, the choice of the indicator is dependent on the actual focus of the measurement. If the focus of interest is to measure the fertility per woman, the TFR is clearly the right choice. In case the focus is set to the number of births in respect to the population development in a particular territory, the CBR should be used. Furthermore the CBR has a direct connection to the natural population balance, which was used as an input variable for the cluster analysis.[4]

Figure 8 Fertility Indicators – Total Fertility Rate (TFR) 2005 and Crude Birth Rate (CBR) average p.a. 2001-2005



Data source: ESPON 2013 Database, NIDI

The average TFR of the 286 regions included in this analysis was 1.53 (children per woman) by 2005, which is clearly below the replacement level of roughly 2.1. The average annual CBR during the period 2001 to 2005 was 10.32 births per 1,000. When looking at Figure 8, the black horizontal lines illustrate the average values with respect to all regions of the ESPON space.

By 2005, regions of Type 1 – Euro Standard had an average TFR of 1.64, which is clearly above the ESPON space average. However, the average CBR of 10.18 per 1,000 is actually slightly below the ESPON space average. The explanation for the contrasting direction with respect to the overall mean of these two indicators measuring the process of fertility can be explained by the underlying age structure. The age structure of Type 1 is "older" compared the average of the ESPON space. Consequently. the proportion of the rather younger age group in the main reproductive age is also below average (see Fig. 7). The TFR confirms, that an average "Type 1 woman" in the reproductive age bears more children compared to the ESPON space average. Because the cohorts of potential mothers between 15 and 49 years are quantitatively weaker than the ESPON space average, the ratio of births (per 1,000) is suppressed, resulting in a relatively low CBR.

Both fertility indicators of Type 2 – Challenge of Labour Force regions is clearly a low fertility type, with both fertility indicators below the ESPON space average (avg. TFR: 1.29; avg. CBR: 9.62 per 1,000). Taking the relatively favourable age structure of Type 2 into account – the average share of young adults aged 20 to 39 years in the prime age of

[4] The natural population balance is the difference of births and deaths – i.e. the equivalent of the difference of the CBR and the CDR (crude death rate) – in a certain period.

childbearing is clearly above the ESPON space average, while the share of elderly people is relatively low – these fertility figures must be interpreted as a very reduced desire for having children. As the title of Type 3 "Family Potentials" implies, both fertility measures are relatively high (i.e. clearly above the ESPON space average) in this type of regions, featuring an average TFR of 1.75 and an average CBR of 12.18 (per 1,000).

Type 4 – Challenge of Ageing and Type 5 – Challenge of Decline have very similar characteristics in regard to TFR (1.41 and 1.36) and CBR (9.14 and 8.34). Both fertility indicators are below ESPON space average in both types of regions. It should be mentioned that the CBR of both types is even below the CBR of Type 2 – Challenge of Labour Force, although the TFR is higher in Type 4 and Type 5 compared to Type 2. Again, the age structure effect is obvious and attributable to the younger age structure of Type 2 (Challenge of Labour Force) compared to the age structure of Type 4 (Challenge of Ageing) and Type 5 (Challenge of Decline).

This same age structural effect can also be observed for Type 6 – Young Potentials, a type with a pronounced young age structure. In this case the TFR of 1.50 is slightly below the ESPON space average, while the CBR (11.71 per 1,000) is above average. Due to this relatively high CBR (and a low CDR – see next Chapter), the regions of Type 6 experience a relatively strong natural population increase (see also Chapter 3.3.7), which is not clearly reflected by the TFR. Finally, the rather atypical Type 7 – Overseas has by far the highest fertility, both in terms of TFR and CBR.

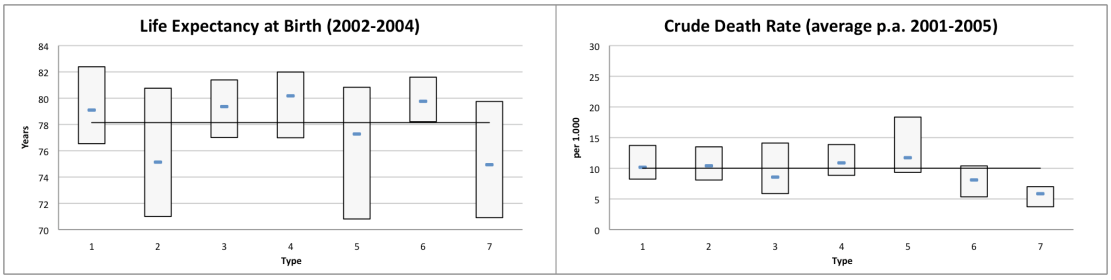
4.3.2 Mortality

As with fertility, again, we consider two indicators for the discussion of the mortality characteristics in respect to the different types of regions: a/ life expectancy at birth (of both sexes combined) during the period 2002 to 2004 and b/ the crude death rate (CDR) for the period 2001 to 2005 – see Figure 9 and the Maps A3.04 to A3.07.[5] The accuracy of the life expectancy indicator can only be verified ex-post, when the last member of the particular cohort has experienced that certain and, in this case, inevitable demographic event. By contrast, the CDR can be interpreted by the same way as the CBR, only taking the number of deaths (instead of births) into account. Like the CBR, also the CDR is distorted by the age structure of a population. In the ESPON space, where mortality rates at younger ages are relatively low, the CDR is responding strongly to the proportion of older people. In any case, the higher the proportion of people in age groups around the actual life expectancy, the higher is the CDR.

During the period 2002 to 2004, the average life expectancy at birth in all regions of the ESPON space was 78.14 years, whereas the average life expectancy of women (81.12 years) is six years higher then those of men (75.10 years). The annual average CDR across ESPON space regions amounts to 10.02 deaths per 1,000.

[5] Besides the combined life expectancy of both sexes (Map A3.04), the Maps A3.05 and A3.06 are portraying the often very divergent life expectancies of men and women.

Figure 9 Mortality Indicators – Life Expectancy at Birth 2002-2004 and Crude Death Rate (CDR) avg. p.a. 2001-2005, per Type.



Data source: ESPON 2013 Database, NIDI

In regions of Type 1 – Euro Standard, the average live expectancy at birth (79.10 years) is higher than the ESPON space average, while the CDR (10.17 per 1,000) is just about average. Type 2 – Challenge of Labour Force has nearly the same CDR (10.41 per 1,000) as Type 1, but the life expectancy in Type 2 (75.13 years) is the lowest of all types, except of Type 7. Although the share of older people is much higher in Type 1 (see also Chapter 3.3.2), the number of deaths in Type 2 is exceeding Type 1 due to a lower life expectancy whilst the share of elderly (65+) is about the same (see Fig. 5 in Chapter 3.3).

Type 3 – Family Potentials displays an above average life expectancy (79.36 years) and a below average CDR (8.56 per 1,000) with regard to the ESPON space average. Again, this discrepancy can be explained by the relatively young age structure of Type 3 (see Chapter 3.3.4), which is resulting in fewer deaths per 1,000, as long as people die first and foremost in older ages (i.e. under a high life expectancy regime). The other rather "young" type of regions, Type 6 – Young Potentials, features similar figures in regard to life expectancy (79.76 years) and CDR (8.10 per 1,000).

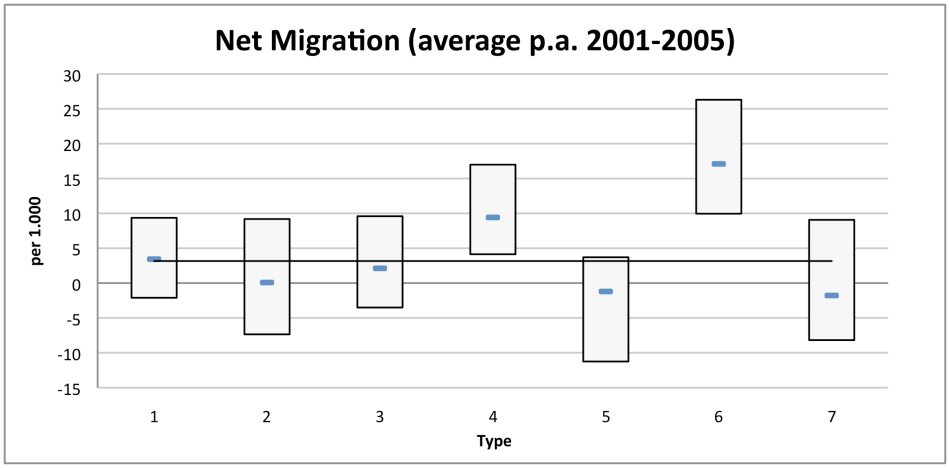
The "older" types of regions, Type 4 – Challenge of Ageing and Type 5 – Challenge of Decline, both have a CDR (10.88 and 11.73 per 1,000) above the ESPON space average. Although the share of older people is higher in Type 4 compared to Type 5, the CDR of Type 4 is below those of Type 5. Again, the reason is the lower life expectancy of Type 5 (77.28 years, i.e. lower than the ESPON space average) compared to highest life expectancy of all types achieved in Type 4 (80.18 years). The average share of elderly aged 65 years and older is around 20% in both types.

Although Type 7 – Overseas features the lowest life expectancy of all types of regions (74.94 years), the CDR of Type 7 (5.85 per 1,000) is also the weakest, because of its pronounced young age structure (see Fig. 7). These examples demonstrate, that a young age structure have a positive effect on the natural population development by implicating a low CDR and a high CBR (see Type 3, Type 6 and Type 7); and vice versa, as demonstrated by Type 4 and Type 5.

4.3.3 Migration

The only available migratory indicator by the time of the development of the demographic classification – the net migration rate – has to illustrate the complex process of migration. This rate is simply a residual of the difference between the total population change and the natural population change. The net migration rate (see also Map A1.04) was used as an input variable for the cluster analysis and was therefore already explained (in Chapter 3.3). At this point the characteristics of this indicator with respect to the different types of regions will be only summarised in brief – the stock of foreign population by type of region will be discussed in the coming Chapter 5.2.1 by means of the European Labour Force Survey data set.

Figure 10 Net Migration Rate per Type, average p.a. 2001-2005.



Data source: ESPON 2013 Database

The strongest net migration gains occur in Type 6 – Young Potentials (17.10 per 1,000) and Type 4 – Challenge of Ageing (9.42 per 1,000). Type 1 – Euro Standard (3.43 per 1,000) and Type 3 – Family Potentials (2.12 per 1,000), both feature positive net migration rates around the ESPON space average (i.e. 0.33 per 1,000). Type 2 – Challenge of Transition has a balanced net migration rate of 0.08 per 1,000. The only types of regions with a negative net migration balance are Type 5 – Challenge of Decline (-4.59 per 1,000) and Type 7 – Overseas (-1.78 per 1,000).

4.4 Demographic Challenges and Potentials

According to the DEMIFER Interim Report (ESPON 2009a:21ff), the biggest demographic challenges that European populations are facing are threefold:

- A low level of fertility – leading to a reduced contribution of natural growth to population growth.
- Population Ageing – due to low fertility levels and the increase in life expectancy in most countries and regions.
- The size of the working age population – a persistently low level of fertility and the so connected population ageing is slowing the growth of the working age population.

The DEMIFER Interim Report (ESPON 2009a:25) further clarifies, that due to the decrease in fertility levels and the increase in international migration, migration has become the main driver of European population growth. About 80% of the overall population growth in the European Union is caused by migration (EC 2008a:25). Although high in-migration cannot compensate for all possible demographic challenges, those kinds of regions with positive net migration rates show the highest potentials in approaching these challenges. In regard to the demographic typology, those types of regions with positive average net migration rates are Type 1 – Euro Standard, Type 3 – Family Potentials and especially Type 4 – Challenge of Ageing and Type 6 – Young Potentials. Just the opposite can be said for the distinctive Eastern European types of regions. The regions of Type 2 – Challenge of Labour Force are showing rather ambivalent net migration rates, while out-migration is prevailing in the regions of Type 5 – Challenge of Decline. Hence, these two regions, especially Type 5, might be facing the biggest demographic challenges ahead.

4.4.1 Low Fertility

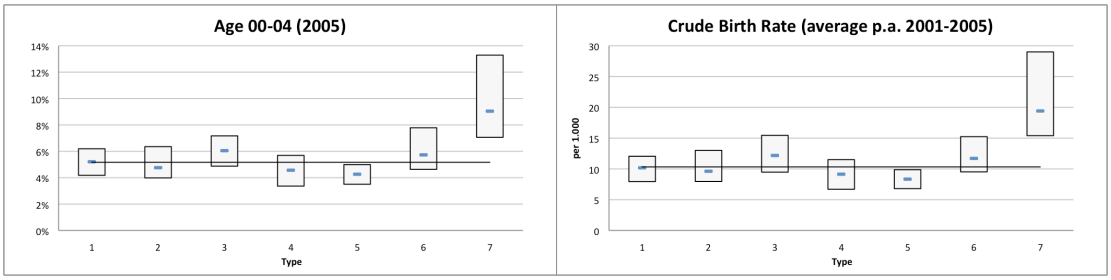
The topic of fertility was already discussed in the previous Chapter 4.3.1 by means of the total fertility rate (TFR) and the crude birth rate (CBR). At this point, the nearly perfect positive correlation between the share of children below 5 years and the CBR shall be demonstrated (see Fig. 11). This relation is once more highlighting the sometimes-underestimated explanatory power of the CBR with respect to spatial impacts of (natural) population development in a particular area.[6]

Those types of regions with an above average share of children below five years, also have an above average CBR, i.e. Type 3 – Family Potentials, Type 6 – Young Potentials and Type 7 – Overseas. Even if the in-flow of migrants is not further increasing, a high potential for sustained natural population growth can be awarded to these three types, which are representing around 29% of the ESPON space population. However, migration does not play the same pivotal role in all three types or regions. While a positive net migration rate is certainly the main driver of

[6] On the level of NUTS 2 regions, the correlation coefficient of the proportion of the age group below 5 years (by 2005) and the CBR (avg. p.a. 2001-2005) is 0.984: The higher the CBR, the higher the share of children (below 5 years).

population development in Type 6 – Young Potentials, the net migration rate is rather ambivalent in the regions of Type 3 – Family Potentials and even negative on average in Type 7 – Overseas. Nevertheless, these three types can boast themselves with a strictly positive natural population balance, contrary to all other types.

Figure 11 Fertility Indicators II – Age Group 00-04 (2005) and Crude Birth Rate (CBR) average p.a. 2001-2005



Data source: EUROSTAT, NSIs

The manifold reasons for sustaining low fertility rates in more developed countries over the last decades and the (political) measures to increase fertility are the topic of extended research. Beyond these behavioural effects, certain demographic structures (i.e. age structural effects) contribute to low rates of fertility, when measured by the CBR. It was already demonstrated that a high(er) proportion of population in the reproductive age can lead to a higher number of births (e.g. Type 3 – Family Potentials and Type 6 – Young Potentials).

Missing Mothers

But it always takes two to become parents; thanks to the progress made in reproductive technologies, nowadays it takes, at the very least, only a mother. By no way, however, more children will be born, if there are not enough mothers. Indeed, a distorted sex ratio in the prime reproductive age is also influencing fertility. Some regions, especially peripheral regions of Type 5 – Challenge of Decline, are lacking potential mothers due to out-migration of young women aged 20 to 29 years (see Map A3.08). In some regions the sex ratio of the age group 20 to 29 is heavily distorted. The most constrained ratios close to 180 men to 100 women can be observed on some Aegean islands and in north-eastern Greece.[7] But also some other Type 5 regions are potentially affected by "missing mothers", e.g. the entire East Germany, except of the urban regions of Berlin and Leipzig), and peripheral areas of Sweden and Finland.

[7] The corresponding average sex ratio at age 20 to 29 years of all ESPON space regions is 104 men to 100 women.

4.4.2 Population Ageing

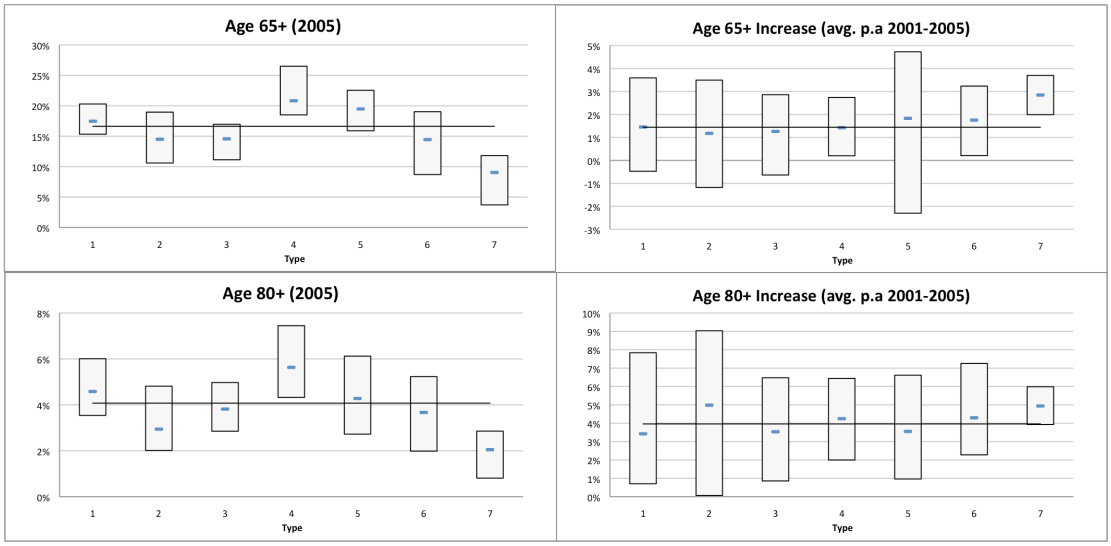
As mentioned in the DEMIFER Interim Report (ESPON 2009a:37), the main effects of population ageing arise from the increase in the costs of retirement schemes, the increase in demand for health care and long-term care and the slowing growth of the working age population. Especially these latter two arguments are topics at the regional scale, whereby pension schemes are solely discussed and applied on the supra-regional level of nation states.

While connecting the ageing indicators to the types of regions of the Demographic Typology, we will start with the share and growth rates of the old and oldest old (aged 65+ and 80+), before portraying the old age dependency ratio (i.e. the number of persons 65 years and over per one hundred persons 15 to 64 years). This ratio provides the information, how many persons aged 15 to 64 years will potentially come up for the increasing costs of a higher share of retired persons and the so-connected higher expenses for health care. Finally, we will discuss the potentials of long-term elderly care within families by means of the parent support ratio (PaSR), which is the number of persons 85 years old and over per one hundred persons 50 to 64 years – i.e. the children of those aged 85 years and older.

<u>The Old and the Oldest Old</u>

The share of people 65+ was already discussed in Chapter 3.2.1 in regard to the input variables of the cluster analysis. Especially Type 4 – Challenge of Ageing and Type 5 – Challenge of Decline feature a high proportion of people aged 65 years and older. This also holds true for the share of the "oldest old" (i.e. 80+), with the addition of Type 1 – Euro Standard (see Fig. 12 and also Map A1.02 and A3.09). The latter can be explained by the relative high life expectancy in regions of Type 1 – Euro Standard. Because Type 4 – Challenge of Ageing has the highest average life expectancy of all types of regions (see also Chapter 4.3.2), its proportion of the oldest old (avg. 5.63%) is also the highest in the ESPON space. In relation to the relatively high share of people aged 65+ in Type 5 – Challenge of Decline, the proportion of people 80 years and older (avg. 4.28%) is relatively small due to its relatively low life expectancy. Below-average proportions of people aged 65+, respectively 80+, can be found in Type 2 – Challenge of Transition, Type 3 – Family Potentials, Type 6 – Young Potentials and Type 7 – Overseas.

Figure 12 Age Groups of the Elderly – Age Group 65+ and 80+ (2005) and the increase of Age Group 65+ and 80+ (average p.a. 2001-2005)



Data source: ESPON 2013 Database

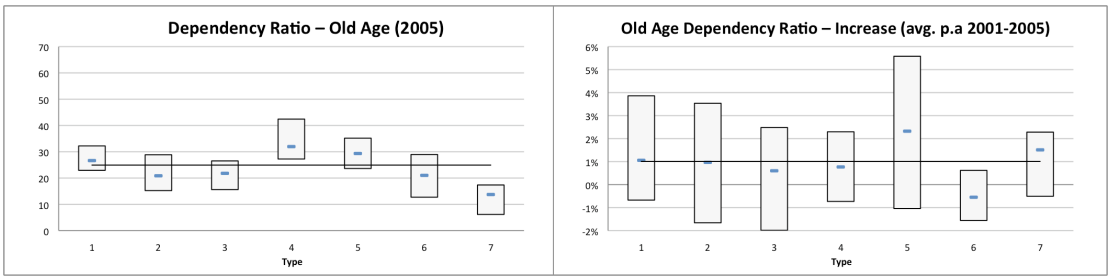
The short-term trends in respect to these two age groups can be gathered by the annual average increase during the period 2001-2005 (Fig. 12/right). The annual average increase in the ESPON space is 1.45% (65+) and 3.96% (80+), making the 80+ age group the strongest growing age group overall (see also Map A3.10 and A3.11). The strongest increase of the age group 65+ can be observed in Type 5 – Challenge of Decline, especially in East Germany. Starting from a low level, also the "young" types of regions (Type 6 – Young Potentials and Type 7 – Overseas) register above average increases in the age group 65+.

Because of the strongly varying life expectancies in the different kinds of regions, the increase of the age group 80+ delivers a partially different picture. Again, the young types of regions (Type 6 – Young Potentials and Type 7 – Overseas) register above average increases in the age group 80+, but simultaneously also a very low share. Type 1 – Euro Standard, with an above average proportion of people in the age group 80 years and older display below average increases, as does Type 3 – Family Potentials. Type 4 – Challenge of Ageing, with the highest overall share of people 80+ and the highest life expectancy, still shows above average increases. The highest increases of the age group 80+ can be observed in Type 2 – Challenge of Transition, illustrating that this type is coined by the lowest – but fortunately increasing – average life expectancy.

Old Age Dependency Ratio

By 2005, the old age dependency ratio (OADR) in the ESPON space was 25/100. That means that there were 25 persons aged 65 years and older per one hundred persons 15 to 64 years (see Fig. 13 and also Map A3.12). Above ESPON space average values can be found in Type 4 – Challenge of Ageing (avg. 32/100), Type 5 – Challenge of Decline (avg. 29/100) and in Type 1 – Euro Standard (avg. 27/100). The highest regional OADR (avg. 42/100) can be found in Liguria (Italy), which also has the highest share of people 65+ (26.51%). All other types have a below average OADR, the lowest in Type 7 – Overseas (avg. 14/100).

Figure 13 Old Age Dependency Ratio – Old Age Dependency Ratio (2005) and Increase of Old Age Dependency Ratio (average p.a. 2001-2005), per Type.



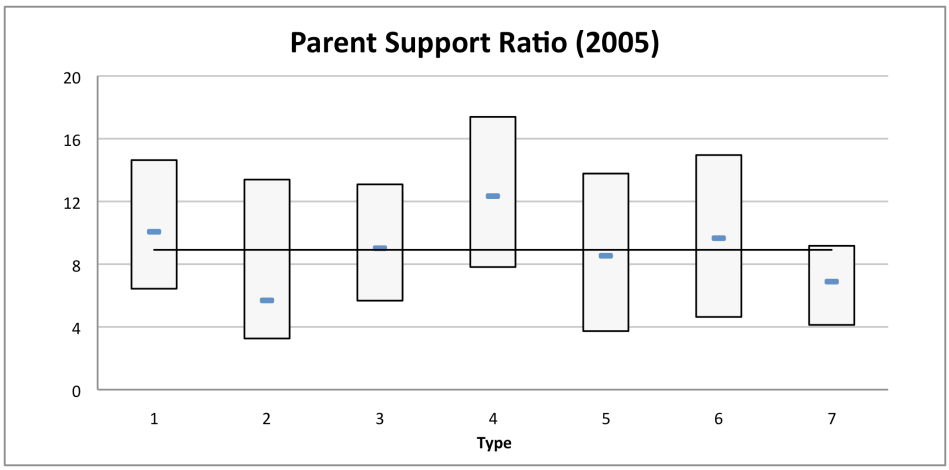
Data source: ESPON 2013 Database

Compared to the overall annual average increase of the old age dependency ratio between 2001 and 2005 (1.01%), Type 5 – Challenge of Decline has to burden the highest annual average increase (2.32%), especially East Germany and the northern regions of Greece (up to 5.5%). Type 6 – Young Potentials is the only type with a decreasing old age dependency ratio (-0.55%) due to the high share of (young) immigrants. All other types of regions display increases around the overall average (between 0.60% and 1.51%).

Parent Support Ratio

One can assume that people at a certain old age are in the pronounced need for long-term care or, at best, need some help to master the routines of daily life. The parent support ratio (PaSR) is supposing that this is the fact for most people aged 85 years and older. In this respect the PaSR is a measure for potential elderly care within families, represented by the number of persons 85 years and older per one hundred persons 50 to 64 years – i.e. the children of those aged 85 years and older (see Fig. 14).

Figure 14 Parent Support Ratio (PaSR) per Type, 2005.



Data source: ESPON 2013 Database

By 2005, the PaSR of the ESPON space was around 9/100, i.e. nine people in the age 85+ per one hundred persons of their children's generation (aged 50 to 64 years). One has to realise that the care of elderly might be a full-time job without any compensatory time. Keeping this in mind, the reciprocal ratio of around eleven persons aged 55 to 64 years per every person aged 85+ would imply that nearly 10% of the older workforce would be needed to care for the oldest old, if there would be no public elderly care. Because elderly care within families is still almost exclusively conducted by women, the labour force participation of women aged 55 to 64 could decrease dramatically within a scenario of a higher share of oldest old in need of care and no social safety net available.

The lowest PaSR ratios can be observed in those types of regions with the lowest life expectancies: in Type 2 – Challenge of Labour Force (avg. 6/100) and Type 7 – Overseas (avg. 7/100). Consequently, the highest PaSR can be found where the life expectancy is highest, i.e. Type 4 – Challenge of Ageing (avg. 12/100). The PaSR of Type 1 – Euro Standard (avg. 10/100) is slightly above average. Type 3 – Family Potentials and Type 6 – Young Potentials show ratios around the ESPON space average. The highest regional PaSR of more than 15/100 – i.e. not even 7 persons aged 55 to 64 years per every person aged 85 years and older – can be found in the regions of Liguria (Italy), Castillia y Leon and Aragon (Spain), which are all regions of Type 4 – Challenge of Ageing (see Map A2.14).

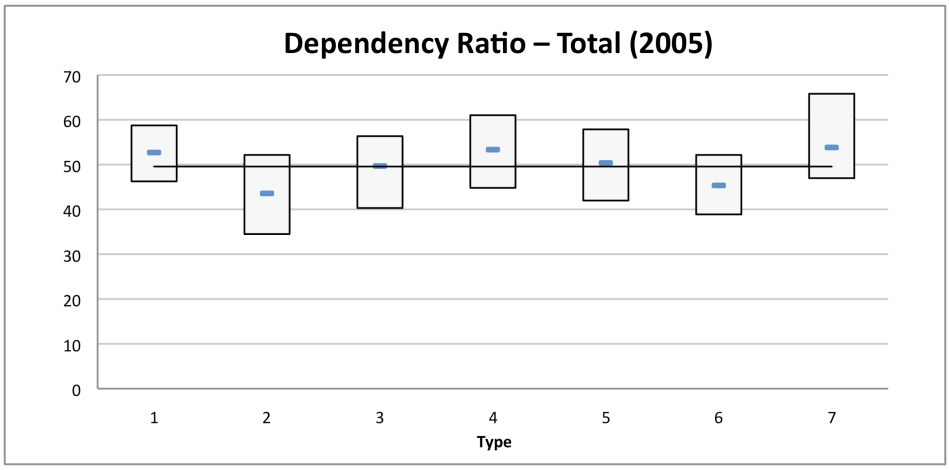
4.4.3 Labour Force

The biggest demographic challenge in regard to the labour force is a slowing growth of the working age population aged 20 to 64 years. This age group constitutes the core of the labour force, because of a generally increasing educational attainment – nowadays only a few people start working full-time before age 20 – because of an official retirement entry age around age 65 in most European countries.[8] Another age structural aspect in respect to the economic performance of a society is the total dependency ratio (Fig. 15 and Map A3.15), which is the sum of the old age dependency ratio (see above) and the youth dependency ratio (Map A3.16).

Total Dependency Ratio

The total dependency ratio displays the relation of the potentially economical active population (age 15 to 64) in relation to the not yet active age group (below age 15) and the not anymore economical active age group (65 years and older). The model of the so-called "Demographic Dividend" assumes that a low total dependency ratio has a positive effect on the per capita income growth (BLOOM, CANNING & SEVILLA 2002:33f).

Figure 15 Total Dependency Ratio per Type, 2005.



Data source: ESPON 2013 Database

With respect to the "Demographic Dividend", Type 2 – Challenge of Labour Force, with an average total dependency ratio of 44/100, boasts the highest demographic bonus. On the one hand, this can be explained by the fact that fertility started to decline not so long ago – from 1990 on – in the former socialist CEE countries. However, by 2005 the last strong birth cohorts, which were born before 1990, were already older than 15 years, resulting in a very low youth dependency ratio (YDR). On the other hand, population ageing is not very advanced (yet) in regions of Type 2, due to the low life expectancy in this type of regions. Apart from Type 2 –

[8] At least the formal retirement age is set to 65 years. In fact, most European countries share the problem of high rates of early retirement, reducing the de facto retirement age by several years.

Challenge of Labour Force, also Type 6 – Young Potentials features a relatively low total dependency ratio (avg. 45/100).

Total dependency ratios above ESPON space average can be observed in Type 7 – Overseas (avg. 54/100), Type 4 – Challenge of Ageing and in Type 1 – Euro Standard (both avg. 53/100). In the case of Type 4, the high total dependency ratio is determined by a high OADR. By contrast, a high YDR (avg. 40/100) is responsible for the high total dependency ratio in Type 7. The total dependency ratio of Type 1 – Euro Standard is nearly equally affected by the YDR (avg. 26/100) and the OADR (avg. 27/100). The highest regional total dependency ratios overall (of more than 60/100) can be found in Liguria, Limousin and Dorset and Somerset (all Type 4 – Challenge of Decline regions) and in Guyane (Type 7 – Overseas) – see Map A3.10.

Working Age Population

Figure 16 illustrates the proportion of the working age population, i.e. the population aged 20 to 64 years by 2005, and the corresponding annual average growth rates for the period 2001 to 2005. The also portrayed age groups (20 to 39 years and 50 to 64 years – see Map A1.01 and A3.18) are representing the younger, respectively older working age population. The proportion of the younger working age population (20 to 39 years) is also used as an input variable of the cluster analysis (see Chapter 3.2.1). These two age groups are shown separately, because of the relationship of age and productivity (GÖBEL & ZWICK 2009). In general it is assumed that the younger working age population is more innovative, while the older working age population is benefiting from long-term experience. The question, if either the younger or the older working age population is more productive, is generally hard to measure and still in discussion (cf. ESPON 2009b:9ff).

The share of the working age population is directly connected to the dependency ratios.[9] Practically, the principles of the model of the "Demographic Dividend" can also be expressed by means of the proportion of the age group 20 to 64 years (i.e. 60.65% in the ESPON space). The regions with the highest proportions are often urban regions, with shares of 65% and more (see Map A3.17).

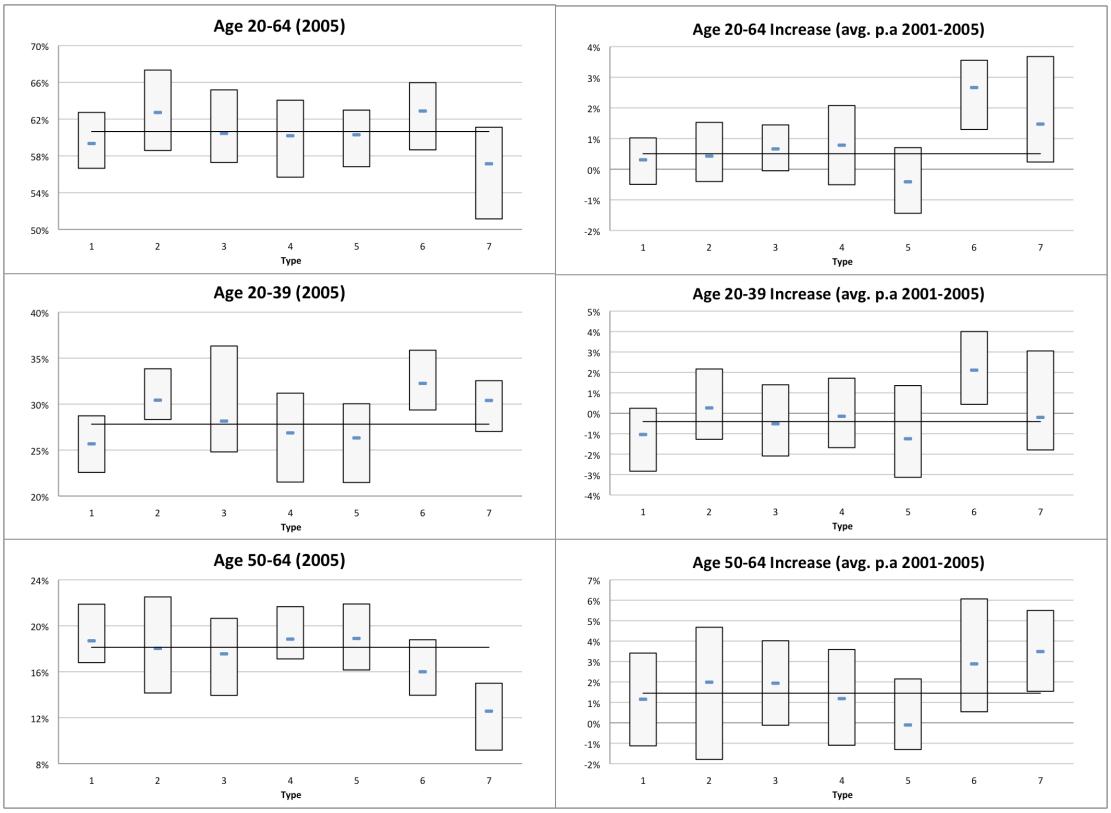
Type 6 – Young Potentials and Type 2 – Challenge of Labour Force feature the highest average shares of the age group 20 to 64 years (62.88% and 62.72%), and also of the young working age population aged 20 to 39 years (avg. 32.26% and 30.43%). Type 7 – Overseas also shows a very high proportion of the young working age population (avg. 30.40%). Because Type 7 has the lowest average share of older workers aged 50 to 64 years (12.57%) when compared to the ESPON space (avg. 18.13%). The share of the age group 20 to 64 years in Type 7 (avg. 57.14%) is also below the overall average. The average proportion of the working age population in regions of Type 3 – Family Potentials, Type 4 – Challenge of Ageing and Type 5 – Challenge of Decline is around the ESPON space

[9] Please note that the here-used definitions of working age population (20 to 64 years) and (potentially) economically active population (15 to 64 years) are not equivalent.

average of 60%. In regard to both working age groups, Type 3 – Family Potentials has above average proportions of the younger working age population and below average proportions of the older working age population. This is exactly the opposite in regions of Type 4 – Challenge of Ageing and Type 5 – Challenge of Decline. Besides Type 7 – Overseas, only Type 1 – Euro Standard is featuring below ESPON space proportions in regard to the working age population (avg. 59.35%), but – contrary to Type 7 – simultaneously above average proportions of the older working age population. Therefore, regions of Type 1 – Euro Standard have the lowest share of younger working age population (avg. 25.68%).

In general, the highest proportions of the younger working age population (35% and more of people aged 20 to 39 years) can be found in urban regions and, apart from that, in regions of Type 6 – Young Potentials (see Map A1.01). By contrast, the regions with the highest shares of the older working age population (20% and more of people aged 50 to 64 years) are located in Type 2 – Challenge of Labour Force (including the entire Czech Republic), Type 4 – Challenge of Ageing, Type 5 – Challenge of Decline, as well as in some Type 3 – Family Potentials regions in Southern Norway and the UK.

Figure 16 Working Age Population – Age Group 20-64, 20-39 and 50-64 per type (2005) and Increase of Age Group 20-64, 20-39 and 50-64 per Type, average p.a. 2005.



Data source: ESPON 2013 Database

The overall annual average increase of the working age population (20 to 64 years) in ESPON space regions during the period 2001 to 2005 was 0.50%. Type 6 – Young Potentials shows the highest overall annual average increases (avg. p.a. 2.66%), whereby both the younger and the older working age population were increasing. Type 7 – Overseas also has a strongly increasing working age population (avg. p.a. 1.47%), but, contrary to Type 6, only the older working age population is growing in Type 7, while the younger working age population is stagnating. The annual average growth rate of the working age population of Type 1 – Family Potentials (0.31%) and of Type 5 – Challenge of Decline (-1.25%) are both below average, whereby the working age population of Type 1 is still increasing and already declining in Type 5. The younger working age population of both types of regions was declining on average by around one percent every year between 2001 and 2005, while the older working age population was increasing in Type 1 (avg. p.a. 1.15%) and declining in Type 5 (avg. p.a. -0.11%).

In all other types of regions (Type 2 – Challenge of Labour Force, Type 3 – Family Potentials and Type 4 – Challenge of Ageing), a slight increase of the age group 20 to 64 years can be observed for the period 2001 to 2005. While the younger working age population is increasing on a low level in Type 2 (avg. p.a. 0.26%), it is even decreasing in Type 3 and Type 4 (avg. p.a. -0.51% and -0.15% respectively). The older working age population is increasing in all three types on average between one and two percent per year. For a further differentiation at the scale of NUTS 2, Maps A3.19 to A3.21 are illustrating the annual average increase of the working age population (aged 20 to 64 years).

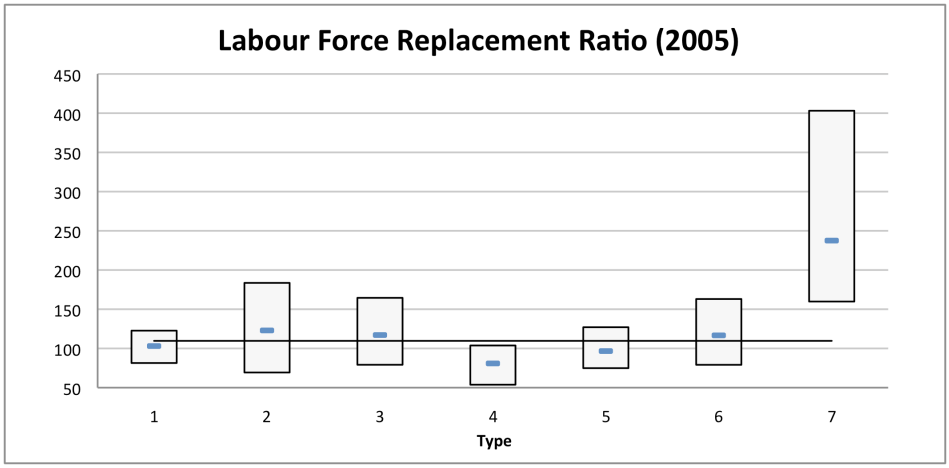
Labour Force Replacement Ratio

The Labour Force Replacement Ratio (Fig. 17 and Map A3.22) is the ratio of the working age population who will retire in the course of the next ten years in relation to the age group 10 to 19 years, which should replace them.[10] A value of 100 means that the older workforce will be replaced by the endogenous youth aged 10 to 19 years (in 2005) by 1:1 – a value below 100 means that the replacement level will not be reached.

The highest labour force replacement potential can be awarded to Type 7 – Overseas, where every older worker can be potentially replaced by nearly 2.4 younger workers. Keeping in mind, that this type of regions shows a negative migration rate, one can assume, that not all those teenagers (aged 10 to 19 by 2005) will join the local workforce during the next ten years and that, at least, some of them will migrate to mainland Europe, and thus to one of the other six types of regions).

[10] The Labour Force Replacement Ratio is based on a "no migration" scenario, assuming that the replacing age group will neither be boosted by young immigrants, or will become migrants themselves and hence will boost the young workforce of other regions in Europe or elsewhere.

Figure 17 Labour Force Replacement Ratio per Type, 2005.



Data source: ESPON 2013 Database

Far below the ratio of Type 7, but still above the ESPON space average of 110/100 is the labour force replacement ratio of Type 2 – Challenge of Labour Force (avg. 123/100), Type 3 – Family Potentials and of Type 6 – Young Potentials (both avg. 117/100). Because Type 6 also features a very strong in-migration, the actual replacement potential might be even higher.

The labour force replacement ratio of Type 1 – Euro Standard (avg. 103/100) is relatively balanced and close to the ESPON space average. Because of the positive net migration rate of Type 1, these regions can also assume to replace their older working age population in the years until 2015 without any problems.

4.5 Demography by Type of Region

This chapter aims to summarize the demographic characteristics of each type of region by 2005 beyond the variables used in the cluster analysis. A special emphasis is placed on the population development and the demographic challenges of low fertility, population ageing and the size of the working age population.

4.5.1 Type 1 – Euro Standard

The total population development in regions of Type 1 was predominately positive during the period 2001 and 2005 (avg. p.a. 3.5 per 1,000) and is closely matching the ESPON space average. In fact, only 7 of the 79 regions of Type 1 have a negative population development and 39 regions can be labelled "double positive" when referring to both components of the population balance: the natural population balance as well as the net migration balance. The other 33 regions have a negative population balance but are still featuring overall population increases due to positive migratory balances. The age structure of Type 1 is also closely comparable to those of the entire ESPON space population, whereas the baby boom bulge of the age group 35 to 55 years is strongly pronounced because of weaker cohorts in the younger ages.

By 2005, regions of Type 1 – Euro Standard had an average TFR of 1.64, which is above the ESPON space average (1.53), while also the life expectancy at birth (79.1 years) is one year above the overall average. Furthermore, a predominately positive net migration rate is contributing to the overall positive population development in this type of regions.

Speaking of demographic challenges, low fertility seems not to be the major problem in regions of Type 1. However, the process of population ageing – measured by the share of the old (65+) and oldest old (80+) – is well advanced when compared to the ESPON space average. This results in a below average share of working age population, especially when considering that the younger working age population aged 20 to 39 years was even decreasing during the period 2001 to 2005.

4.5.2 Type 2 – Challenge of Labour Force

Type 2 is rather ambivalent when it comes to the components of population development and is stagnating with respect to population growth (avg. p.a. -0.71 per 1,000). However, the majority of the regions of this type show a negative population development, whereas a third of all Type 2 regions are "double negative" referring to the natural population balance and the migratory balance. The age structure clearly differs from the ESPON space structure, because of the lower proportion of the younger (below 10 years) and older population (55 years and older). The age group between 15 and 29 years is above average, while people between 35 and 44 years also do show proportions below the ESPON space average.

The average total fertility rate (1.29) in regions of Type 2 was the lowest of all types of regions by 2005, as is the life expectancy of 75.1 years. The net migration rate (0.08 per 1,000) is rather balanced and hence below the ESPON space average.

The low levels of fertility, if prevailing, will be a major challenge for this type of regions. The last strong birth cohorts were entering the labour market between 2005 and 2010. This is contributing to an above LFS space average share of younger adults aged 20 to 29 years, while the proportion of the entire working age population is just around average. Further sufficient labour supply might not be provided without increasing immigration. At the moment, the relative low life expectancy is mitigating population ageing. However, with no further in-migration and an ongoing lowest-low fertility, the demographic table might turn to the worse for this type of regions.

4.5.3 Type 3 – Family Potentials

All but two regions of Type 3 are featuring a population increase and 40 out of 55 regions can be declared as "double positive" with respect to both components of the population development. This results in a strong annual average population increase of 5.84 (per 1,000). Type 3 features an age structure, which is matching the ESPON space average in the prime age of the labour force (20 to 59 years). Younger and older age groups reveal a favourable weighting.

As the title "Family Potentials" implies, the average TFR of 1.75 is not posing a serious challenge for this type of regions. The average life expectancy of 79.3 years is also relatively high and thus above the ESPON space average. Because of the considerable high birth rates and a moderate in-migration, the share of the elderly is below the ESPON space average, despite the relative high live expectancy at birth in this type of regions. The share of the working age population is around average, and was still increasing between 2001 and 2005.

4.5.4 Type 4 – Challenge of Ageing

Similar to Type 3, all Type 4 regions but one are experiencing population increases, although 24 of the 33 regions are featuring a negative natural population development. Hence the population increase is driven by a strictly positive net migration rate, on average 9.42 per 1,000. As the title of this type indicates, the share of the younger population below age 30 is clearly underrepresented, while the proportion of the older age groups (55 years and older) is significantly higher in comparison to the ESPON space age structure.

The average TFR of Type 4 regions amounts to 1.41 and is below the ESPON space average. However, the average life expectancy of 80.2 years is the highest of all types of regions. As a result, the share of elderly in Type 4, be it the old or oldest old, is by far the highest. Albeit the low birth rates and the high share of older people, the proportion of the working age population is just slightly below the overall average and was even increasing between 2001 and 2005. This proves that migration can mitigate low fertility and population ageing to some extent, especially when tackling the challenge of maintaining the size of the labour force.

4.5.5 Type 5 – Challenge of Decline

Out of the 38 regions of this type, only two regions are withstanding a decline of the population size because of their positive migratory balance. In fact, 17 regions are in line with the "double negative" type of population development. Taking the low TFR (1.36) and the strictly negative net migration balance (avg. p.a. -4.59 per 1,000) into account, the age groups 15 years and younger and 25 to 34 years are clearly underrepresented in the age structure of Type 5. Only the proportion of the older age groups above age 55 is significantly higher in comparison to the ESPON space. Because of this rather unfavourable age structure, the share of the elder population is clearly above the LFS space average, although the average life expectancy at birth (77.3 years) is relatively low.

Such a demographic setting is also affecting the working age population. At a glance, the proportion of people aged 20 to 64 years is just slightly below the ESPON space average. However, the share of younger adults aged 20 to 39 years is clearly below that average, and thus those of older workers aged 55 to 64 years above the ESPON space average. The share of the working age population, especially those of the younger workforce, was already declining during the period 2001 to 2005.

4.5.6 Type 6 – Young Potentials

The regions of Type 6 are nearly entirely absorbed by the "double positive" type, when it comes to the components of population development. Only one region had a slightly negative natural population balance between 2001 and 2005, but was still showing a population increase due to a positive migratory balance. As the title of this type of regions suggests, Type 6 – Young Potentials is showing considerable high shares in the younger ages, especially in the age groups 20 to 44 years and below 5 years.

The average TFR of Type 6 regions (1.50) is very close to the ESPON space average, while the life expectancy (79.8 years) is above average. The strictly positive population development is driven by strong annual average net migration gains (17.1 per 1,000 between 2001 and 2005). These considerable in-flows are also reflected by the young age structure and contribute to the relative low proportions of elderly people in this type of regions. The share of the working age population is not only above the ESPON space average, it is also the youngest and features the strongest increases of all types of regions.

4.5.7 Type 7 – Overseas

The demographic characteristics of Type 7 are strongly contrasted from those of the six main types. The positive population development in all five regions of this type is driven by a strong natural population increase, while the net migration balance was negative on average between 2001 and 2005. Because of a TFR of around 2.5 and a life expectancy of just 75.1 years, the age structure of Type 7 could be indeed depicted by the form of a pyramid, where each age group is stronger than the subsequent age group of higher age.

The proportion of elderly people is far below those of any other type of regions. The same can be said about the share of working age population. However, the share of the younger working age population aged 20 to 39 years is the second highest besides Type 2 and those of the older workforce aged 55 to 64 years is by far the lowest of all types of regions.

5 Socio-Economic Illustration of the Classification

In order to link the classification of European regions based on demographic variables to socio-economic variables, this chapter describes the process and the results of connecting the European Labour Force Survey (EU-LFS) to the demographic typology.

5.1 Linking the Demographic Typology with Socio-economic Variables

The examination of the effects of demographic developments and migration flows for various types of regions with respect to socio-economic characteristics is an explicit requirement of the DEMIFER project (cf. ESPON 2008b:6).

5.1.1 Towards a Combined Socio-economic & Demographic Typology?

Based on the final cluster solution, i.e. the typology of the demographic status by 2005 (see Chapter 3.3), there are two ways to construct a combined demographic and socio-economic typology:

- Extension of the demographic data set with socio-economic variables to construct an extended typology with the method of cluster analysis.
- Linkage of the demographic typology with the European Labour Force Survey. In this case the EU-LFS indicators will not be included in the typology, but will instead be used as dependent variables for a further illustration of the classification result achieved by the cluster analysis.

Due to the mutual relationship between demography and economy (cf. ESPON 2009b), adding economic variables to the demographic data set of the typology ("extension") would complicate the interpretation of the classification. Therefore the typology will be kept strictly demographic and the EU-LFS 2007 data set will be linked in order to describe the socio-economic performance of the types of regions resulting from the demographic typology.

5.1.2 The European Labour Force Survey (EU-LFS)

The EU-LFS is a quarterly household sample survey, conducted in the 27 Member States of the EU, as well as in the Candidate Countries and in some EFTA countries (EC 2009b:ii). This survey is providing results on labour participation of people aged 15+ as well as on persons outside the labour force. Since 1983, the Labour Force Survey is conducted by the National Statistical Institutes (NSI) across Europe and is centrally processed by Eurostat.

> *"By its very nature it is a particularly rich data base relating to various conditions and opportunities in the working life of individuals (…) and on other aspects of the social structures of European societies." Walter MÜLLER & Markus GANGL (2000:1)*

Compared to other databases the EU-LFS offers several advantages, especially when used for comparative studies: e.g. rather large samples of respondents that allow stable estimates even for selected social groups (cf. MÜLLER & GANGL 2000:1f). In general, the information is based on detailed classification schemas, such as NACE for economic activity, ISCO for occupation, ISCED for education and NUTS for regional data.

5.1.3 Linking the Labour Force Survey to the Demographic Typology

Having said that the EU-LFS relies on detailed information schemes, in fact the data set is not as consistent as it would be desirable. Because of its sample structure – especially the spatial aggregation (see below) – the EU-LFS indicators could not be used as input variables for the cluster analysis. Nevertheless, the final cluster solution (i.e. types of regions) can be described even more accurately by using the EU-LFS.

Spatial Adaption of the Demographic Typology

Two major spatial restrictions regarding the EU-LFS 2007 data set prevented the use of EU-LFS indicators as input variables for the cluster analysis of European (NUTS 2) regions. First, the EU-LFS data set does not cover the entire ESPON space. The following ESPON countries and regions are missing:

- Malta, Iceland, Switzerland and Liechtenstein, as well as
- the French Overseas Departments and Territories of Martinique, Guadeloupe, Guyane and Réunion

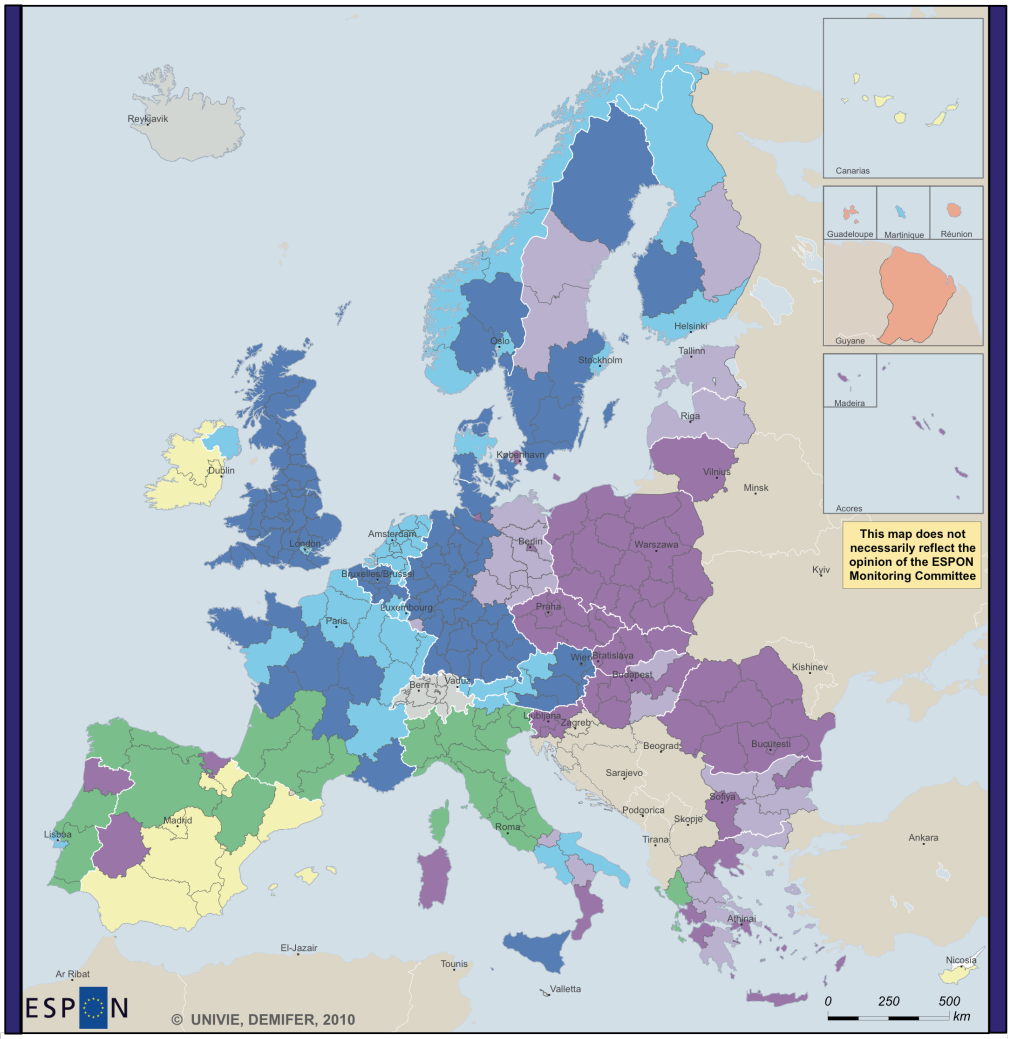
Second, the spatial structure of the EU-LFS data set, although aiming to stick to NUTS 2 level, shows a few exceptions with respect to the consistency of the spatial aggregation. In the case of some ESPON countries, the data is not following the principle of NUTS 2 aggregation:

- NUTS 1 level … Austria, Germany and the UK
- NUTS 0 level … the Netherlands

In order to analyse the EU-LFS data set linked to the demographic typology, the actual EU-LFS spatial aggregation had to be taken into account. Another cluster analysis was carried out, based on the same input variables and methodology as applied for the original demographic typology (see Chapter 3.3). The result of the adapted cluster solution proved to be stable in regard to the original typology (for details see Annex 6 – "Adapting the Typology to the EU-LFS 2007 Structure").

Map 7 LFS Typology of the Demographic Status in 2005

LFS Typology of the Demographic Status in 2005



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Regional level: NUTS 2, except AT, DE, UK NUTS1 (2006), NL NUTS0 (2006)
Source: ESPON 2013 Database 2010
Origin of data: Eurostat, NSIs 2008/09
© EuroGeographics Association for administrative boundaries

Demographic Typology by 2005 - LFS 2007 Adaption					Age Group 20-39 (%)			Age Group 65+ (%)			Natural Population Increase (per 1000)			Net Migration (per 1000)		
					2005						average per annum 2001-2005					
Type	Classification	Cases	Population		avg	min	max	avg	min	max	avg	min	max	avg	min	max
1	Euro Standard	50	161 284 413	32.04%	25.58	23.06	28.72	17.48	15.33	20.30	0.23	-2.32	2.47	3.26	-2.11	9.04
2	Challenge of Labour Force	61	116 767 795	23.20%	30.43	28.33	33.84	14.51	10.60	18.96	-0.78	-4.76	2.89	0.08	-7.35	9.19
3	Family Potentials	39	86 811 799	17.25%	28.07	24.80	36.32	14.68	11.96	16.96	3.92	1.52	9.00	1.48	-3.51	9.59
4	Challenge of Ageing	28	60 003 477	11.92%	27.50	23.77	31.19	21.00	18.51	26.51	-1.72	-6.19	1.43	9.27	4.14	16.99
5	Challenge of Decline	26	31 855 917	6.33%	26.64	21.47	30.04	19.36	15.89	22.48	-3.64	-10.35	-0.59	-1.86	-11.25	3.70
6	Young Potentials	14	36 916 381	7.33%	32.38	29.36	35.86	14.37	8.70	19.03	3.88	0.12	9.78	17.44	9.96	26.30
7	Overseas	5	1 555 069	0.31%	30.40	27.02	32.55	9.04	3.71	11.81	13.56	8.40	25.28	-1.78	-8.18	9.07
0	no LFS data	10	8 145 947	1.62%	*27.97*	*26.69*	*29.26*	*14.83*	*11.13*	*18.60*	*2.54*	*-0.19*	*8.11*	*5.31*	*2.36*	*7.82*
EU 27+4	ESPON Space	233	503 340 799	100%	28.23	21.47	36.32	16.38	3.71	26.51	0.52	-10.35	25.28	3.11	-11.25	26.30

The main changes of the adapted typology with respect to the original typology can be summarised as follows:

- Reduced number of regions – due to missing countries and different NUTS levels (see above). Around two percent of the ESPON space population and 14 regions are not covered by the EU-LFS 2007 data set (i.e. "Type 0").
- Different population size and number of regions per type of region – especially Type 5 – Challenge of Decline diminished due to the aggregation to NUTS 1 level. In the case of Germany, only two West German NUTS 1 regions remained in Type 5, contrary to the classification on NUTS 2 level – resulting in the conventional German East-West-divide.
- Variable ranges and average values per type of region changed slightly – due to the differences in the spatial aggregation.
- Type 7 – Overseas became irrelevant for the EU-LFS analysis – due to the exclusion of the French Overseas Departments and Territories (see above), only two regions remain in this type of regions in the LFS adapted version of the demographic typology. These two regions, i.e. Ceuta and Melilla, constitute just 0.03% of the entire ESPON space population.

In the EU-LFS adapted typology (see Map 7), the ESPON space consists of 222 regions at different NUTS levels, instead of 286 regions in the final classification at NUTS 2 level (cf. Map 5). Out of these 222 regions, the EU-LFS 2007 is covering 208 regions (i.e. the "LFS space"). The remaining 14 regions (i.e. Malta, Iceland, Switzerland and Liechtenstein, as well as the French Overseas Departments and Territories) were not analysed and are listed as "Type 0".

5.2 Socio-economic Indicators

Based on the most recent EU-LFS 2007 dataset, the economic performance of the demographically distinguished types of regions (Chapter 5.2.1) will be discussed by means of socio-economic characteristics, with a special emphasis on the foreign population (5.2.2), educational composition (5.2.3), as well as labour status (5.2.4) and economic activity (5.2.5) by age, sex and origin. Additional figures, maps and tables of the therefore used indicators can be found in Appendix 4 and 5.

As mentioned above, the LFS data set is, contrary to the demographic typology, not strictly aligned to the NUTS 2 level and is thus not covering all ESPON space regions. For that reason this analysis is restricted to the so-called "LFS space", i.e. the ESPON Space (EU27+4) without Malta, Switzerland, Liechtenstein, Iceland and the French Overseas Departments and Territories of Martinique, Guadeloupe, Guyane and Réunion. Furthermore the EU-LFS indicators mentioned in the following are based on the year 2007, only the GDP figures (Chapter 5.2.1) were taken from the ESPON 2013 Database and are thus relating to 2005, matching the base year of the demographic typology.

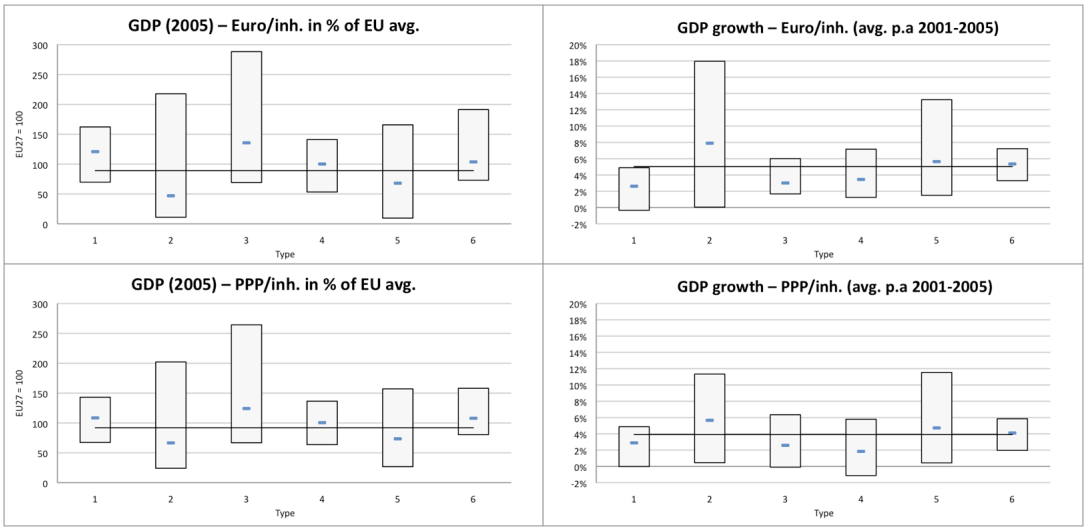
5.2.1 Economic Performance (GDP)

The gross domestic product (GDP) is a general accepted measure for the economic performance – which should not be equated with "wealth" in any way.[11] When comparing differences by GDP, it makes sense taking (also) the purchasing power parity (PPP) into account and to apply a per capita approach. It is worth noting that the here used GDP figures are based on data of the year (2001 to) 2005. Consequently, this analysis does not reflect any effects of the recent global economic downturn.

With respect to the GDP level by 2005 and the annual average GDP growth between 2001 and 2005, Figure xx is illustrating the range (bar) and the average (short blue line) of every type of region (Type 1-6) in regard to the overall average of all LFS space regions (horizontal line across the chart area).

In general, the comparison of GDP/Euro and GDP/PPP, both by level and growth, does not reveal significant differences for any type of region, neither in regard to each other, nor in their position to the overall average. However, differences between GDP/Euro and GDP/PPP can be found in the range of each type of regions – see also Map A1.01 – A1.04.

Figure 18 GDP (2005) as an average of EU27 and GDP growth (avg. p.a. 2001-2005), in Euro/inh. and PPP/inh.



Data source: ESPON 2013 Database

[11] Accordingly to the definition of Eurostat/OECD (EC 2006:254), GDP can be estimated using three alternative approaches which, in theory, yield the same result, namely: (a) the production approach – which sums all the value added generated by the country's resident institutional sectors during the accounting period; (b) the expenditure approach – which sums all the final expenditures incurred by the country's resident institutional sectors during the accounting period; and (c) the income approach – which sums all the factor incomes paid by the country's resident institutional sectors engaged in domestic production during the accounting period.

GDP Level by 2005

Distinctive Western and Northern European types of regions, i.e. Type 1 – Euro Standard and Type 3 – Family Potentials, do show the highest GDP in Euro and also per capita, clearly above the average of the LFS space as well as the EU27 average, which is marked by the 100-line. These types of regions are covering most of the countries, which followed a market-orientated economy at least since the mid 20th century (UK, France, the Benelux countries, West Germany, Austria and the Scandinavian countries).

The so-called "new growth regions", because of their pronounced positive net migration balance between 2001 and 2005, of Type 4 – Challenge of Ageing and Type 6 – Young Potentials, also show above LFS space average GDP values close to the EU27 average. Both types of regions – to be found on the Iberian Peninsula, in Southern France, Northern Italy, Ireland and Cyprus – also feature the smallest ranges and are thus relatively homogeneous with respect to the GDP level by 2005.

Only the distinctive Eastern European types, Type 2 – Challenge of Labour Force and Type 5 – Challenge of Decline, show below LFS average values, reaching a GDP-PPP per capita level of 67% (Type 2) and 73.5% (Type 5) com-pared to the EU27 average.

The broad range of the regional GDP per capita by 2005, especially in Type 2 – Challenge of Labour Force and Type 3 – Family Potentials, is due to the inclusion of regions with economically high performing urban centres. In the case of Type 2, these are first and foremost Hamburg and the Danish capital region of Hovedstaden including Copenhagen. In Type 3, the regions with remarkable high GDP figures – i.e. above 200% of the EU27 average – are Luxembourg, the Brussels region, London and Stockholm.

GDP Growth 2001-2005

Looking at the average annual GDP growth between 2001 and 2005, the economically better performing ("richer") types of regions have the weakest GDP growth, i.e. Type 1, Type 3 and also Type 4 – all below the overall average (indicated by the horizontal line across the chart area of Fig. 18). In the case of Type 3, the negative GDP growth between 2001 and 2005 in some northern Italian regions (e.g. in Abruzzo, Emilia-Romagna, Provincia Autonoma Trento, Umbria, Lombardia and Piemonte – also Map A4.04) is contributing to the weak overall GDP growth of this type of regions. The GDP growth per capita of Type 6 – Young Potentials is roughly matching the overall annual average of the LFS space (5% GDP/Euro and 4% GDP/PPP).

Generally speaking, the highest GDP growth can be found in those types of regions with the weakest GDP values: i.e. Type 2 – Challenge of Labour Force and Type 5 – Challenge of Decline.[12] However, the average values

[12] A correlation calculation of GDP/Euro 2005 and GDP/Euro growth 2001-2005 (by NUTS regions) revealed a coefficient of -0,545 (and -0,375 for GDP/PPP): The higher the GDP level, the lower the GDP growth.

per type of regions do not reflect the heterogeneity or the broad range of regional GDP growth between 2001 and 2005 within the different types of regions, especially within Type 2 – Challenge of Labour Force. Some "double weak" GDP regions – i.e. regions with low GDP per capita (2005) values on the one hand and weak GDP per capita growth rates (2001-2005) on the other hand – can be found in Poland, Slovakia and Hungary (Type 2) and also in Bulgaria (Type 5) – cf. Map A4.01 to A4.04.

5.2.2 Foreign Population

The demographic typology comprises only a single migratory indicator: the net migration rate (cf. Chapter 3.2.1). The EU-LFS data set sheds more light on the foreign population of each particular type of region by 2007. In this respect, this chapter aims to deliver an extended description of the migrant stock by type of region.

The EU-LFS offers two indicators with respect to the migratory background: "country of birth" and "citizenship/nationality". These additional stock indicators can be further distinguished by the "years of residence in this Member State". Unfortunately, an analysis of the indicator "country of birth" is not possible, because this particular indicator is missing for Germany and Ireland. In the case of Ireland, the indicator "years of residence in this Member State" is also not available.

For this reasons, this analysis of the foreign population is limited to the citizenship indicator, distinguishing between three groups:

- National … non migrants (citizenship of the Member State)
- EU27 … migrants with a citizenship from another EU27 country and
- Non-EU … so-called third-country migrants with a citizenship from a Non-EU country.

<u>Population by Citizenship</u>

Certainly, nationality is by far not the perfect indicator. It would be preferable to have the country of birth, at best in relation to the nationality and the years of residence (in this Member State). However, the citizenship (nationality) is a commonly used and understood indicator, which can be applied without further explanation when illustrating the migrant stock per type of region. A first overview of the population by sex and origin (citizenship) can be obtained from Table 5 and Map A4.05 to A4.07 (see Annex 4).

Across the LFS space, the foreign population measured by citizenship amounts to five percent of the total population, or around 25 million people. Differentiated by origin (EU27 and Non-EU), it is striking that the stock of Non-EU migrants (3.31%) is almost twice as high as the stock of EU27 migrants (1.75%). The overall sex ratio is generally well balanced, although female migrants are slightly outnumbering male migrants.

Table 5 Population by Citizenship and Type of Region (2007)

Nationality (2007)	Male				Female				Total			
(thousands)	National	EU-27	non EU	total	National	EU-27	non EU	total	National	EU-27	non EU	total
Type 1	72,810	1,735	2,768	77,313	76,022	1,735	2,721	80,478	148,832	3,470	5,489	157,791
Type 2	55,287	185	613	56,085	58,555	215	609	59,379	113,842	400	1,222	115,464
Type 3	39,846	1,180	1,789	42,815	41,269	1,203	1,826	44,298	81,115	2,383	3,615	87,113
Type 4	27,661	414	1,299	29,374	29,179	491	1,219	30,889	56,840	905	2,518	60,263
Type 5	14,803	68	258	15,129	15,566	68	273	15,907	30,369	136	531	31,036
Type 6	16,838	620	1,350	18,808	16,931	654	1,477	19,062	33,769	1,274	2,827	37,870
Type 7	63	0	2	65	61	1	7	69	124	1	9	134
Total	227,308	4,202	8,079	239,589	237,583	4,367	8,132	250,082	464,891	8,569	16,211	489,671
Nationality (2007)	**Male**				**Female**				**Total**			
(%)	**National**	**EU-27**	**non EU**	**total**	**National**	**EU-27**	**non EU**	**total**	**National**	**EU-27**	**non EU**	**total**
Type 1	94.18	2.24	3.58	100	94.46	2.16	3.38	100	94.32	2.20	3.48	100
Type 2	98.58	0.33	1.09	100	98.61	0.36	1.03	100	98.60	0.35	1.06	100
Type 3	93.07	2.76	4.18	100	93.16	2.72	4.12	100	93.11	2.74	4.15	100
Type 4	94.17	1.41	4.42	100	94.46	1.59	3.95	100	94.32	1.50	4.18	100
Type 5	97.85	0.45	1.71	100	97.86	0.43	1.72	100	97.85	0.44	1.71	100
Type 6	89.53	3.30	7.18	100	88.82	3.43	7.75	100	89.17	3.36	7.47	100
Total	94.87	1.75	3.37	100	95.00	1.75	3.25	100	94.94	1.75	3.31	100

Data source: EU-LFS 2007 (EUROSTAT 2008)

The highest migrant stocks in absolute numbers (see Tab. 5) can be found in Type 1 – Euro Standard (around 9 million) and Type 3 – Family Potentials (around 6 million). Further significant migrant stocks can be observed in the regions of Type 6 – Young Potentials and Type 4 – Challenge of Decline. By 2007, around 7.5 million migrants, i.e. roughly 30% of all migrants in the LFS space, were living in the "new growth regions" of Type 4 and Type 6, although the population of these two types of regions combined is amounting to just about 20% of the total LFS space population. The two distinctive Eastern European types of regions, Type 2 – Challenge of Labour Force and Type 5 – Challenge of Decline, constitute around 30% of the overall LFS space population, but account only for less than 10% of its foreign population.

By far, the highest shares of foreign population by 2007 (see Tab. 6 and also Map A4.05) can be found in the regions of Type 6 – Young Potentials (avg. 10.8%), especially in the Spanish regions of Valencia and Andalucia as well as on the Baleares (15% and more). Closest to that, but by some distance are the regions of Type 4 – Challenge of Ageing (avg. 6.9%). Both Type 1 – Euro Standard and Type 3 – Family Potentials have an average share of 5.7% of foreign citizens, with outstanding high shares of 20% and more in the urban regions of London, Brussels and Luxembourg (all Type 3). Only Type 5 – Challenge of Decline (avg. 2.2%) and Type 2 – Challenge of Labour Force (avg. 1.4%) are featuring foreign population stocks below the LFS space average of 5.1%, whereby some distinctive urban regions (Berlin, Hamburg, Copenhagen, Attica/Athens – all Type 2) have considerable higher migrant shares of close to 10%. With respect to the other regions of Type 5, Estonia has a considerable high share of foreign population (roughly 16%), which is related to the high amount of Russian citizens in the Baltic countries in general.

Table 6 Foreign Population Stock by Nationality and Ratio (EU27 : Non-EU) by 2007

Foreign Population	x 1.000 (2007)			% (2007)			Ratio
	EU-27	Non-EU	total	EU-27	Non-EU	total	EU27 : Non-EU
Type 1	3,480	5,472	**8,952**	2.20	3.47	**5.67**	1.57
Type 2	2,375	3,593	**5,968**	0.35	1.06	**1.41**	3.02
Type 3	1,277	2,836	**4,113**	2.72	4.12	**6.85**	1.51
Type 4	903	2,521	**3,424**	1.49	4.17	**5.67**	2.79
Type 5	407	1,228	**1,635**	0.45	1.72	**2.16**	3.84
Type 6	139	534	**673**	3.36	7.47	**10.83**	2.22
Total (LFS)	8,581	16,184	**24,765**	1.75	3.30	**5.05**	1.89

Data source: EU-LFS 2007 (EUROSTAT 2008)

Ratio of EU27 to Non-EU Migrants

When analysing the foreign population stocks of LFS space regions by origin (EU27 vs. Non-EU citizens), it is striking that nearly twice as many migrants have a Non-EU citizenship (16.2 million) compared to those with a citizenship from another EU27 country (8.6 million). Indeed, not only the total number and proportion of the foreign population is differing by type of region, also the origin of the respective migrant population varies strongly (see Tab. 6 and also Map A4.06 and A4.07). This particular differentiation between EU27 and Non-EU citizens is far more than a subtle distinction, because any EU27 citizen can move and stay within the EU without those restrictions applied to Non-EU citizens – e.g. freedom of establishment or labour laws. Furthermore, the host society is applying different standards to EU citizens – especially from EU15 countries – and Non-EU-citizens when it comes to the topic of integration.

Taking only the foreign population by nationality into account, the highest ratios of three to four Non-EU citizens per every EU27 citizen can be observed in those types of regions with the smallest foreign population stocks, i.e. Type 5 – Challenge of Decline and Type 2 – Challenge of Labour Force. Other types of regions with above LFS space average ratios of 2.8 and 2.2 (Non-EU citizens per EU27 citizens) are Type 4 – Challenge of Ageing and Type 6 – Young Potentials. Those types of regions, which are featuring the highest migrant stocks by absolute numbers, i.e. Type 1 – Euro Standard and Type 3 – Family Potentials, are showing the smallest ratios of 1.6 and 1.5 when differentiating between Non-EU and EU27 citizens.

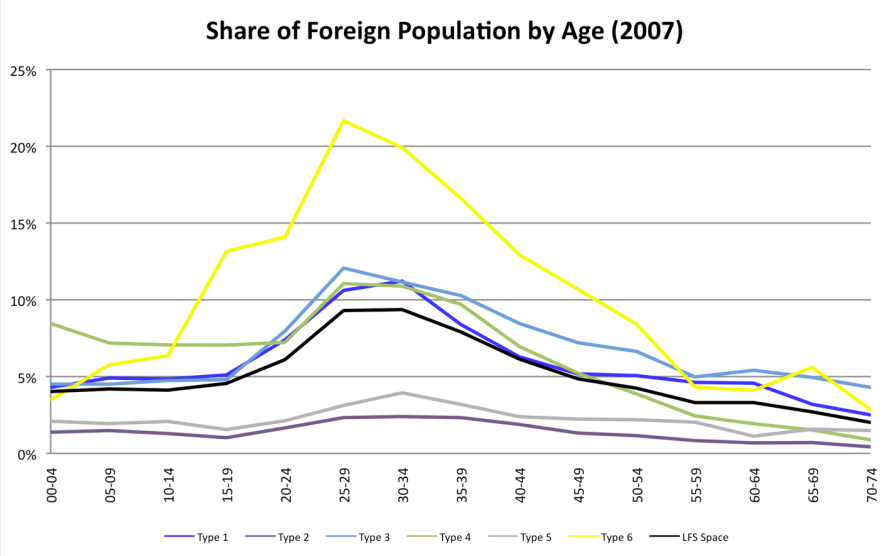
Foreign Population by Age

The age of immigrants is of special interest when analysing the role of migration with respect to the quantitative demands of the labour market. Figure 19 is showing the size of the foreign population by age, which is further distinguished between EU27 and Non-EU citizens in Figure 20.

In all types of regions of the LFS space, the peak age of the foreign population is between 20 to 39 years (see Fig. 19). In regions of Type 6 – Young Potentials, with an extraordinary high share of foreign population, more than 20% of the population aged 25 to 34 years is holding a foreign citizenship. With respect to all regions of the LFS space, this particular proportion is close to 10%. The foreign population is in general concentrated in the working ages in all types of regions, apart from Type

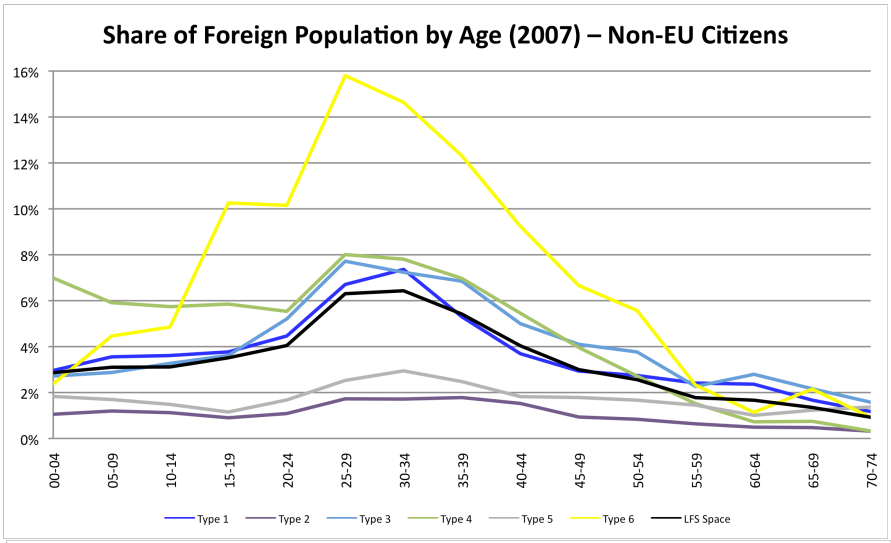
2 – Challenge of Labour Force and Type 5 – Challenge of Decline, where the foreign population stock is nearly non-existing or very low.

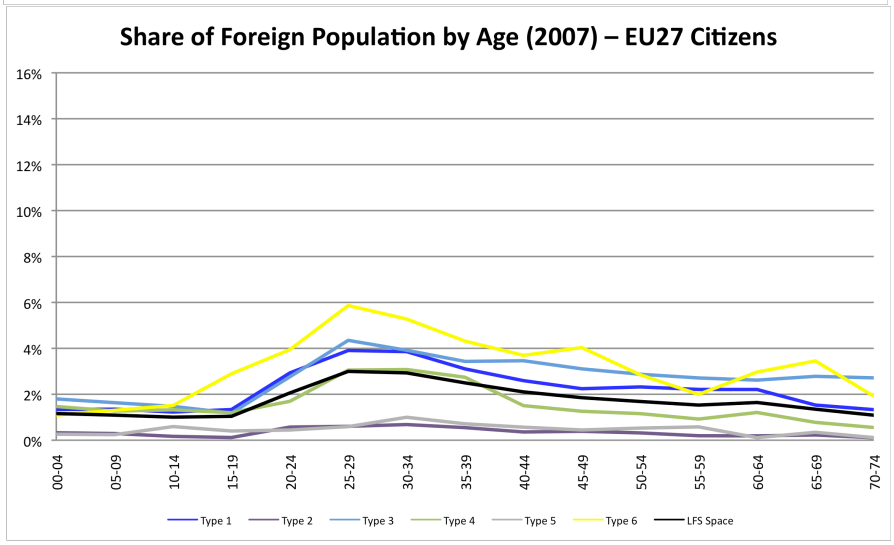
Figure 19 Share of Foreign Population by Citizenship and Age (2007)



Data source: EU-LFS 2007 (EUROSTAT 2008)

Figure 20 Share of Foreign Population by Origin and Age (2007)





Data source: EU-LFS 2007 (EUROSTAT 2008)

The age distribution of the foreign population from other EU27 countries is more balanced when compared to Non-EU citizens (cf. Fig. 20). In regions of Type 6 – Young Potentials with the highest migrants stocks relative to the total population and of Type 3 – Family Potentials, the share of EU27 migrants in the older age groups (above age 60) is remarkable high, even though there are only minor differences by age in Type 3. A high share of elder foreigners could either indicate that those regions are traditional migrant destinations with ongoing migration flows and a hence culminated foreign population stock, or that these regions are attractive for retirement migration. When looking at the geographical distribution of Type 6 – Young Potentials, the latter could be true, at least to some extent. Spanish Type 6 regions like the Baleares and Canaries are both very popular domiciles of German retirees, while wealthy British pensioners favour the south coast of the Spanish mainland (cf. KRÖHNERT et al. 2008:76). However, retirement migration is only very rarely, if ever, the main aspect of a high proportion of foreign population. Retirement migrants are usually rather wealthy and demand a certain degree of services, which are in turn often supplied by even more and younger migrant labourers.

Looking at the numerically superior group of migrants with Non-EU citizenships (Fig. 20/bottom), the age-specific migrant stocks of Type 1 – Euro Standard, Type 3 – Family Potentials and Type 4 – Challenge of Ageing are relatively similar and very close to the LFS space average (black line). Type 4 – Challenge of Ageing is featuring an extraordinary high share of very young migrants (below age 20). This could be an indication that Non-EU citizens, contrary to EU27 citizens, are bringing their children with them to a large extent when migrating to this type of regions.

Length of Stay

The validity of the indicator "length of stay", which is referring to the years of residence in the Member State (MS) – and thus not necessarily to the same NUTS region – is restricted due to the missing data for Ireland. Anyhow, at this point the indicator "length of stay" is used to differentiate between traditional and relatively new migrant destinations with respect to the different types of regions. Table 7 is featuring the population of every type of region by years of residency, distinguishing between "natives" (born in the MS), recently settled migrants (1 to 5 years), longer-settled migrants (5 to 10 years) and long-term migrants (10 years and more).

Table 7 Population by Length of Stay and Type of Region (2007)

	Populationby years of residence in Member State (2007)					
(thousands)	born in MS	1-5 years	5-10 years	10+ years	total POP	total Non-MS
Type 1	140,955	2,851	2,117	11,793	157,716	16,761
Type 2	113,035	456	438	1,963	115,892	2,857
Type 3	76,605	2,001	1,662	6,853	87,121	10,516
Type 4	55,661	1,259	1,195	2,310	60,425	4,764
Type 5	29,223	159	182	1,530	31,094	1,871
Type 6	29,246	1,742	1,801	1,213	34,002	4,756
Type 7	115	3	2	19	139	24
Total	444,840	8,471	7,397	25,681	486,389	41,549
(%)	born in MS	1-5 years	5-10 years	10+ years	total POP	total Non-MS
Type 1	89.37	1.81	1.34	7.48	100	10.63
Type 2	97.53	0.39	0.38	1.69	100	2.47
Type 3	87.93	2.30	1.91	7.87	100	12.07
Type 4	92.12	2.08	1.98	3.82	100	7.88
Type 5	93.98	0.51	0.59	4.92	100	6.02
Type 6	86.01	5.12	5.30	3.57	100	13.99
Total	91.46	1.74	1.52	5.28	100	8.54

Data source: EU-LFS 2007 (EUROSTAT 2008)

Type 4 – Challenge of Ageing and especially Type 6 – Young Potentials, indeed seem to be "new growth regions", as the length of stay of the majority of the migrant stock is 10 years and less. Contrary to that, Type 1 – Euro Standard and Type 3 – Family Potentials, can be seen as traditional migrant destinations, simply because the majority of the migrant population is settling in these types of regions since more than a decade. Logically, those types of regions with no significant foreign population stocks – i.e. Type 2 – Challenge of Labour Force and Type 5 – Challenge of Decline – also did not recently experience any significant in-migration. In these types of regions, the vast majority of the anyhow minor stock of migrants is attributable to in-migrations, which took place more than 10 years ago (i.e. before 1997).

5.2.3 Educational Level

After illustrating the economic performance (by GDP level and growth) and the quantities of particular migrant populations (by 2007) for each of the demographically distinguished types of regions, this chapter will examine the population characteristics in respect to education (by age, sex and origin) of each type of region.

Education

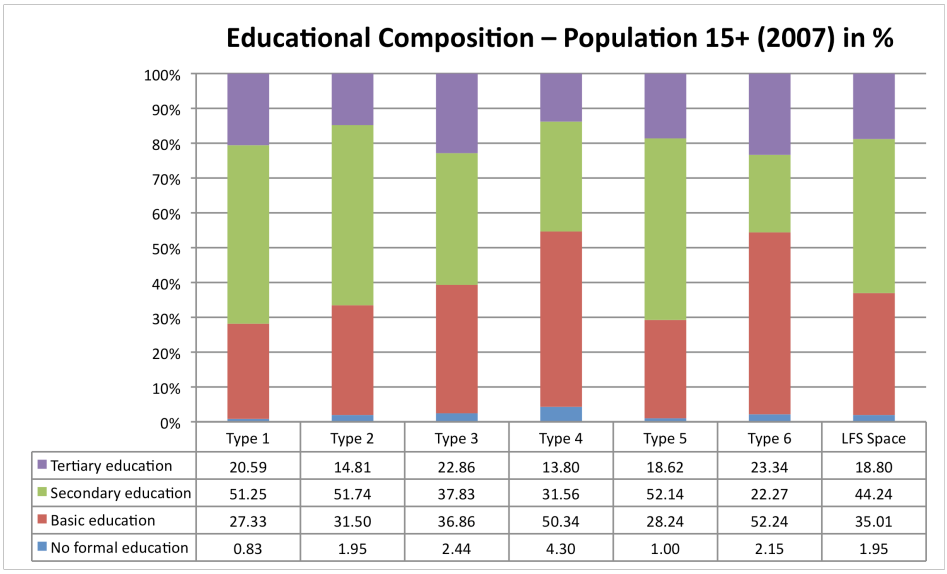
In regard to the human capital, which is defined, accordingly by the health status, commonly measured by life expectancy (see Chapter 4.3.2) and the educational level of a population, the highest level of formal education (age 15+) will be discussed by aggregating the ISCED classification into four groups:

- No formal education – ISCED 0
- Basic education (compulsory education) – ISCED 1.2
- Secondary education – ISCED 3.4
- Tertiary education – ISCED 5.6

With respect to the educational composition only the population 15+ is taken into account. A breakdown by highest educational level of younger persons below age 15 would make no sense, as younger age groups did not even finish compulsory education (i.e. basic education). Moreover, at age 15 most people can still expect a transition to a higher educational level. When determining solely the share of tertiary educated people, the age group 25+ is commonly applied because of the associated longer educational attainment. For practical reasons, the age group 15+ will be used for the coming analyses.

Taking the overall LFS space population aged 15 years and older into account, less than two percent have no formal education, around one third (35%) have only basic or compulsory education, nearly half of the population enjoyed a upper secondary education and around 19% gained a tertiary education (see Fig. 21). The highest shares of tertiary educated people (15+) can be found in Type 6 – Young Potentials, Type 3 – Family Potentials and Type 1 – euro Standard (all above 20%). By contrast, the lowest shares (below 15%) must be attributed to Type 2 – Challenge of Labour Force and Type 4 – Challenge of Ageing.

Figure 21 Population by Highest Level of Education (2007)



	Type 1	Type 2	Type 3	Type 4	Type 5	Type 6	LFS Space
Tertiary education	20.59	14.81	22.86	13.80	18.62	23.34	18.80
Secondary education	51.25	51.74	37.83	31.56	52.14	22.27	44.24
Basic education	27.33	31.50	36.86	50.34	28.24	52.24	35.01
No formal education	0.83	1.95	2.44	4.30	1.00	2.15	1.95

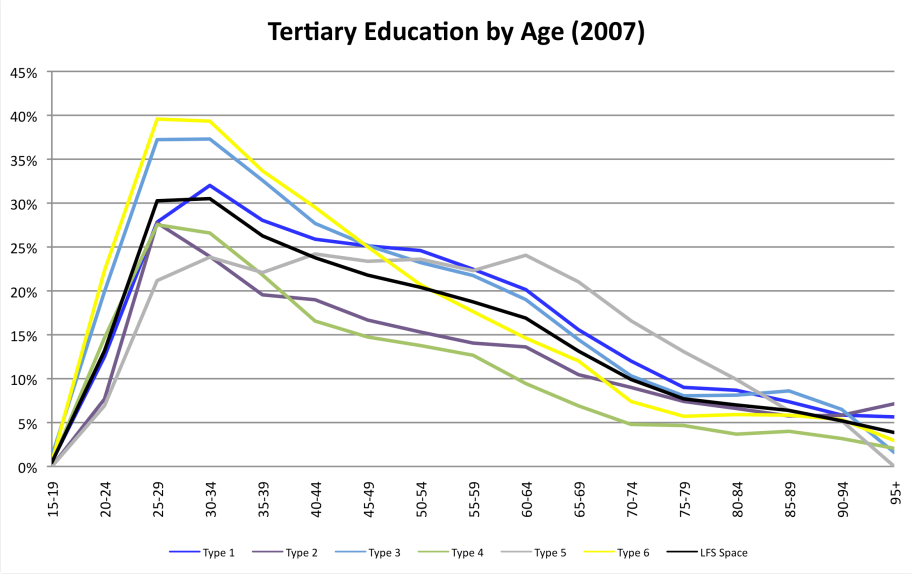
Data source: EU-LFS 2007 (EUROSTAT 2008)

Focussing on the other end of the educational scale, the highest shares of lower educated people (i.e. no formal education and basic education combined) can be observed in Type 4 – Challenge of Ageing and Type 6 – Young Potentials with more than 50%. In the case of Type 6, this results in a very low share of secondary educated persons and in a rather imbalanced educational composition with a high proportion of both higher (tertiary) and lower educated people. By contrast, the proportion of secondary educated people is highest with more than 50% in the distinctive Eastern European types of regions – i.e. Type 2 – Challenge of Labour Force and Type 5 – Challenge of Decline. The proportion of people without any formal education is indeed infinitesimal small (below 2.5%) in

all types of regions, besides Type 4 – Challenge of Ageing with more than four percent.

The gender perspective shows a clear female overrepresentation in the lower educational levels (no formal and basic education), while men are overrepresented at the higher educational levels (secondary and tertiary education). However, the future of higher education will be female. The gender gap is shifting to female advantage at younger ages, resulting in a higher female proportion of tertiary educated people below 40 years (see Fig. 22).

Figure 22 Share of Tertiary Educated Population (15+) by Age (2007)



Data source: EU-LFS 2007 (EUROSTAT 2008)

When differentiating the educational level by age and type of region, the share of the population (15+) with tertiary education might be the most meaningful indicator (see Fig. 22 and Map A4.08). In general, the proportion of persons with tertiary education is decreasing by age, signifying the increasing importance of higher education. Only in regions of Type 5 – Challenge of Decline, there is no increase in the proportion of tertiary educated people in the younger ages below 40 years, while this type of regions is achieving the highest proportions of tertiary education among the elder population aged 55 and older. Taking the considerable negative migration balance of Type 5 regions into account, one could assume that the younger and better-educated people might have emigrated first.

However, the figures are indicating that tertiary educational attainments are changing to the better in all other types of regions, especially in Type 3 – Family Potentials and Type 6 – Young Potentials. These two types of regions are showing the highest proportions of younger people below age 35 with a tertiary education (more than 40%). Also in regions of Type 2 – Challenge of Labour Force and Type 4 – Challenge of Ageing, significant progress is being made when comparing the tertiary educational

attainment of the younger between 25 and 30 years (above 25%) and the older population, let's say above age 50 with less than 15%.

Table 8 Highest Formal Education (15+) by Nationality (2007)

Type of Region	Highest formal education (ISCED) 15 years and over in % (2007)											
	National Population				EU27 Foreigners				Non–EU Foreigners			
	No formal education	Basic education	Secondary education	Tertiary education	No formal education	Basic education	Secondary education	Tertiary education	No formal education	Basic education	Secondary education	Tertiary education
Type 1	0.78	26.35	52.04	20.83	1.63	33.79	44.97	19.62	1.75	47.72	35.27	15.26
Type 2	1.96	31.34	51.95	14.74	0.29	25.86	49.43	24.43	0.91	48.74	32.90	17.46
Type 3	2.13	36.97	38.07	22.82	3.25	32.02	37.92	26.81	8.46	37.57	32.91	21.06
Type 4	4.16	50.67	31.32	13.85	3.04	33.67	44.43	18.86	8.21	49.05	32.18	10.56
Type 5	1.00	28.17	52.27	18.56	0.00	44.72	36.59	18.70	0.68	28.93	47.84	22.55
Type 6	2.23	54.06	20.27	23.44	0.00	26.83	42.39	30.78	2.32	47.64	33.42	16.62
LFS Space	1.87	34.72	44.64	18.78	1.87	32.00	42.66	23.48	4.24	45.09	34.15	16.52

Data source: EU-LFS 2007 (EUROSTAT 2008)

Considering the migratory background of the entire LFS space population by nationality – distinguishing between nationals, EU27 citizens and migrants from Non-EU countries, the educational composition of the national population and the foreign population from other EU27 countries is very similar (see Tab. 8). Compared to these two groups, migrants from Non-EU countries are clearly less educated. Nearly 50% of the Non-EU foreign population aged 15 years and older only had a lower education (i.e. no formal or basic education). Generally speaking, migrants from another EU27 country are higher educated than Non-EU migrants. When considering only the tertiary education of people older than 15 years, this proportion of highly educated people is even considerably higher among EU27 citizens (23.5%) when compared to the national population (18.8%). Looking at the different types of regions, by far the highest shares of highly educated migrants from other EU27 countries (31%) can be observed in Type 6 – Young Potentials. Besides that, the educational level of EU27 citizens succeed those of the national population also in all other types of regions, except for Type 1 – Euro Standard.

Nevertheless, the foreign population from Non-EU countries is clearly overrepresented with respect to EU27 citizens, but clearly underrepresented when it comes to higher education. This educational gap becomes even more apparent, when looking at the share with no formal education at all (4.2%). The proportion of migrants from Non-EU countries with no formal education is highest in Type 3 – Family Potentials and Type 4 – Challenge of Ageing (both more than 8%). In fact, when looking at these educational figures and considering the labour market bifurcation in accordance to the theory of the "Dual Labour Market", one might feel compelled to ascribe nationals and EU27 citizens strictly to the primary sector (providing high wages and steady jobs for the better educated), while migrants from outside the EU27 must be attributed to the secondary sector (offering only low wages, as well as little stability and opportunities for advancement). An analysis of the labour status and economic activity (in the coming chapters) might show if this platitude will prove to be true.

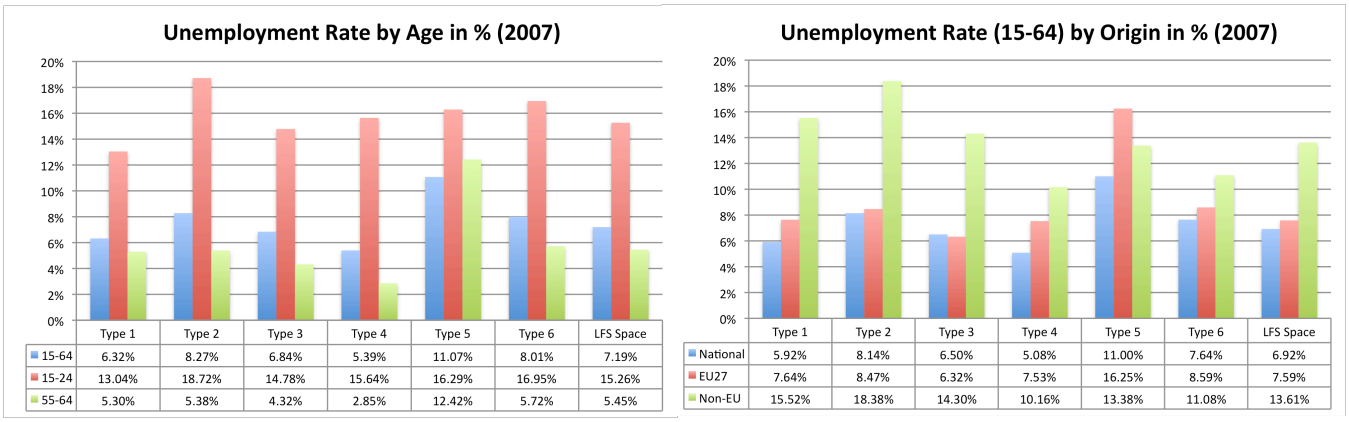
5.2.4 Labour Status

The labour status by ILO definition will be approached by the unemployment rate and the labour force participation rate, focussing not only on the total working age population (15 to 64 years), but also looking at the younger (15 to 24 years) and older labour force (55 to 64 years), with a special emphasis on the migrant labour force. Beyond that, the "real dependency ratio" will be examined, depicting the ratio of the actually economical active population (i.e. the employed population aged 15 to 74 years) in respect to the economical inactive population (i.e. all others).

Unemployment Rate (2007)

By 2007, the LFS space unemployment rate (15 to 64 years) amounted to 7.2% (see Fig. 23/left), which is closely corresponding to the respective rate of the EU27 (7.1%) published by Eurostat. Compared to the overall figures (15 to 64 years), the youth unemployment in the age group 15 to 24 years (15.3%) is more than twice as high. By contrast, the unemployment rate of older workers (5.5%) is considerably lower, even in regard to the overall unemployment rate. The female unemployment rate, however, is higher in all age groups when compared to men. Differentiating by nationality (see Fig. 23/right), the unemployment rate of the national population is the lowest (6.9%), whereby the unemployment rate of EU27 migrants (7.6%) is just slightly higher. Compared to these two groups, the unemployment rate of Non-EU citizens (13.6%) is nearly twice as high.

Figure 23 Unemployment Rate by Age and Origin (2007)



Data source: EUROSTAT / EU-LFS (2007)

Type 5 – Challenge of Decline had, by far, the highest unemployment rate by 2007 (11.1%). In all other types of regions, the unemployment rate was ranging between 5.4% (Type 4 – Challenge of Ageing) and 8.3% (Type 2 – Challenge of Labour Force). When differentiating by age (see Fig. 23/left), Type 2 – Challenge of Labour Force has the highest youth unemployment (18.7%), while the lowest can be observed in Type 1 – Euro Standard (13.0%). With respect to the older workforce (55 to 64 years), the highest unemployment rates must be attributed to Type 5 – Challenge of Decline (12.4%) and the lowest to Type 4 – Challenge of

Ageing (2.9%).[13] In all other types of regions, the unemployment rate of older workers is between 4.3% (Type 3 – Family Potentials) and 5.8% (Type 6 – Young Potentials).

As mentioned before, the female unemployment rate is higher when compared to men, which is true for all types of regions (see Tab. A5.06). The widest gender gap can be observed in regions of Type 6 – Young Potentials: women: 10.2%; men: 6.4%. In Type 1 – Euro Standard, not only the gender gap but also the unemployment rate is the smallest of all types of regions: 6.5% for women and 6.2% for men. By 2007, the highest female unemployment rate was observed in Type 5 – Challenge of Decline (11.8%). Interestingly, the extent of the gender gap in respect to the unemployment rate is differing by age and type of region. For the younger female labour force (15 to 24 years), the gap is strongest in Type 4 – Challenge of Ageing (women: 19.0%; men: 13.2%) and Type 6 – Young Potentials (women: 19.5%; men: 14.9%). In regions of Type 1 – Euro Standard and Type 3 – Family Potentials, this particular gender gap is not only the smallest of all types of regions, beyond that, it is even to the advantage of young women. For the older female labour force (55 to 64 years), the gender gap in the unemployment rate is less distinct and most likely recognisable in Type 5 – Challenge of Decline and Type 6 – Young Potentials. In both types of regions, the female unemployment rate (55 to 64 years) surpasses those of men by roughly two percent

Duration of Unemployment

Taking the duration of unemployment into account (see Tab. A5.05 and Map A4.10), the age group 15 to 64 years is equally balanced in regard to short-term and long-term unemployment: 42% of all unemployed persons are jobless since less than 6 month, while 42% are without employment since one year or longer – indicating that only 16% are unemployed between 6 and 12 month. In the age group 15 to 24 years, more than 50% are short-term unemployed, contrary to the group of older workers aged 55 to 64 years, where more than 60% are unemployed since one year or longer. When it comes to the duration of unemployment, there are no significant gender differences recognisable for any age group.

Differentiating by type of region, Type 3 – Family Potentials and especially Type 1 – Euro Standard are very close to the LFS space average when it comes to the duration of unemployment. In the distinctive Eastern European regions of Type 2 – Challenge of Labour Force and Type 5 – Challenge of Decline, more than 50% of all unemployed persons are long-term unemployed – i.e. out of work since more than one year. Contrary to that, short-term unemployment of less than half a year is prevailing in regions of Type 4 – Challenge of Ageing (51%) and Type 6 – Young Potentials (66%).

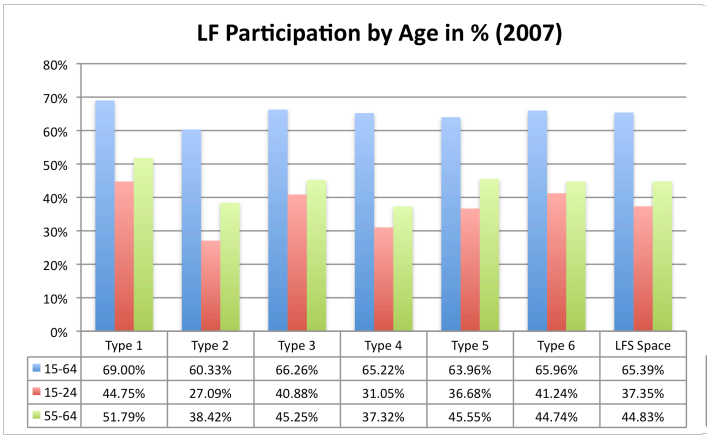
[13] The relatively low unemployment rate of older workers (aged 15 to 64 years) in Type 4 – Challenge of Ageing, which includes many northern Italian regions, might be biased by the Italian retirement scheme. The age of retirement in Italy varies between 57 and 65 years, resulting in an effective retirement age of 59 years for men and 62 years for women. From 2008 on, the Italian retirement age will be steadily increased (RYMKEVITCH & VILLOSIO 2007:18).

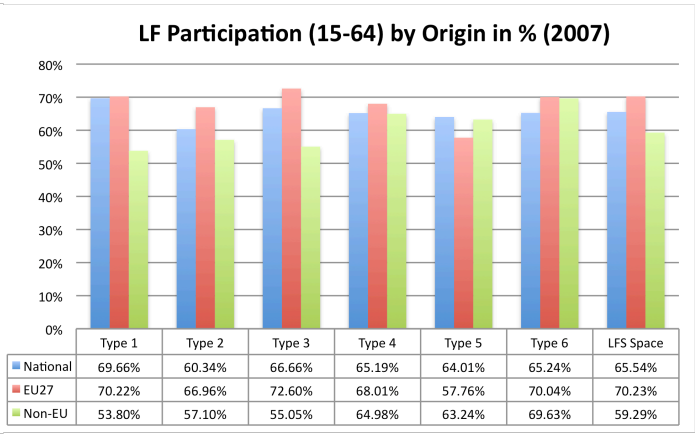
Labour Force Participation Rate

The labour force participation rate (15 to 64 years) amounted to 65.4% in the LFS space by 2007 (see Fig. 24 below and Map A4.11). Differentiating between younger (15 to 24 years) and older workforce (55 to 64 years), it is worth noting that both age groups feature considerably lower participation rates compared to all ages. Distinguishing between these two age groups, the labour force participation rate of older workers (44.9%) is higher than those of the younger (37.4%). However, the very low labour force participation of younger people aged 15 to 24 years must be seen in the context of a prolonged educational period in (upper) secondary and tertiary education (cf. Chapter 5.2.2). The labour force participation rate of the elderly (65 years and older) is 4.7% across the LFS space.

The gender perspective delivers a clear picture: The LFS space labour force participation rate of women (58.4% for the age group 15 to 64 years) is clearly lagging behind those of men (72.4%), in fact in all age groups and types of regions. Taking the migratory background into account, EU27 citizens are showing the highest labour force participation rate (70.2%), clearly above the national working age population (65.5%). With only 59.3%, Non-EU citizens have the lowest labour force participation rate.

Figure 24 Labour Force Participation Rate by Age and Origin (2007)





Data source: EUROSTAT / EU-LFS (2007)

The highest labour force participation rate (15 to 64 years) can be observed in Type 1 – Euro Standard (69.0%) and the lowest in regions of Type 2 – Challenge of Labour Force (60.3%). In all other types of regions, the labour force participation rate is closely around the LFS space average of 65.4%.

When distinguishing by age, the same patterns can be observed compared to the entire labour force aged 15 to 64 years. In the age group 15 to 24 years, the highest participation rates can be found in regions of Type 1 – Euro Standard (44.7%), followed by Type 6 – Young Potentials (41.2%) and Type 3 – Family Potentials (40.9%). In all other types of regions, the labour force participation rate of the younger is below the LFS space

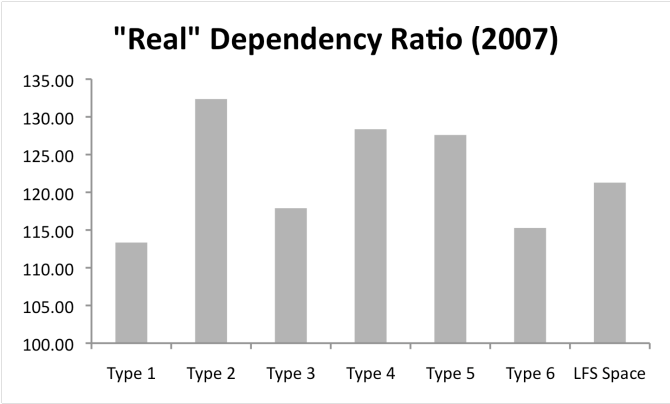
average, while it is the lowest in regions of Type 2 – Challenge of Labour Force (27.9%). When looking at the older labour force (55 to 64 years), the same is true. In this age group the highest participation rates can be observed again in Type 1 (51.8%) and the lowest in Type 2 and Type 4 (both around 38%).

Focussing on the foreign labour force, as mentioned before, the participation rate of EU27 citizens is not only above those of Non-EU citizens, but even higher than those of nationals. That proves to be true for all types of regions, except for Type 5 – Challenge of Decline and Type 6 – Young Potentials. In regions of Type 5, with a very low share of foreign population, the participation rates of nationals and Non-EU citizens are just about equal (64.0% and 63.2% respectively). The labour force participation rate of EU27 citizens in Type 5 of 57.8% is remarkably low when compared to all other types of regions. However, in regions of Type 6, the labour force participation rate of nationals (65.2%) is lower than those of foreign citizens, whereas EU27 citizens and Non-EU citizens feature nearly equal rates of 70.0% and 69.6% respectively.

Real Dependency Ratio

Contrary to the commonly used age-related dependency ratio (cf. Chapter 4.4.2), the Real Dependency Ratio (or "worker to non-worker ratio") – i.e. the ratio of all employed persons aged 15 to 74 years in regard to the rest of the population (unemployed and inactive persons at all ages) – demonstrates that by 2007 around 121 non-employed persons at all ages were actually dependent on the labour productivity of one hundred employed persons, when taking the entire LFS space into account (see Fig. 25 and also Map A4.12).

Figure 25 "Real" Dependency Ratio (2007)



Data source:
EUROSTAT / EU-LFS (2007)

This ratio is by far the lowest in Type 1 – Euro Standard, where 100 employed persons aged 15 to 74 years are opposed to 113 unemployed and inactive persons (at all ages). Besides that, this "real" dependency ratio is below the LFS space average in regions of Type 6 – Young Potentials (115/100) and Type 3 – Young Potentials (118/100). Above LFS space average ratios can be observed in Type 2 – Challenge of Labour Force (132/100), Type 4 – Challenge of Ageing and Type 5 – Challenge of Decline (both 128/100).

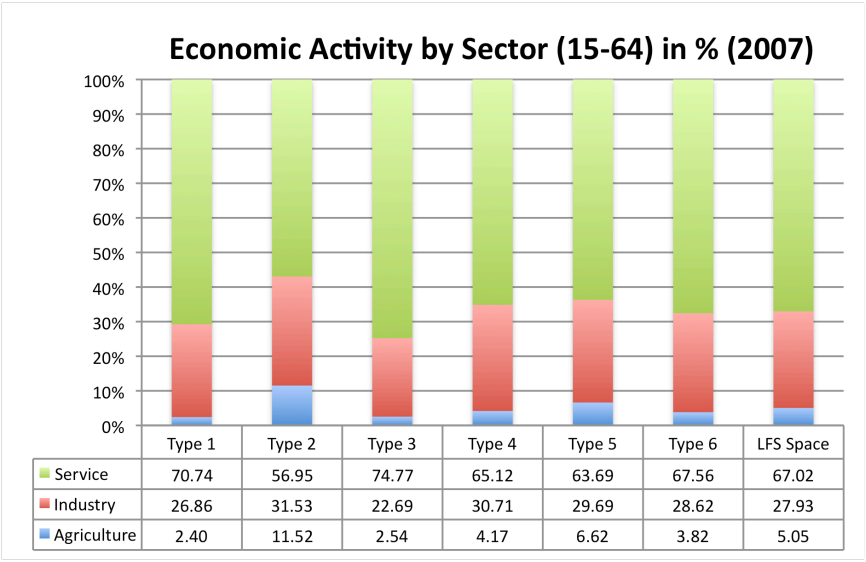
When looking at these figures, it becomes obvious that this ratio is not only determined by demographic factors, but also by the participation in the labour force or – to be exact – by the employment rate at all ages. For sure, the low ratio of Type 1 – Euro Standard must be attributed to the considerable high labour force participation in this type of regions (cf. Fig. 24), while the relative high proportion of people in the working age is contributing to the low ratios in Type 6 – Young Potentials and Type 3 – Young Potentials. With respect to Type 4 – Challenge of Ageing and Type 5 – Challenge of Decline, the opposite is true.

Type 2 – Challenge of Labour Force is a good example, that a favourable age structure alone is not the panacea in respect to a high share of economic active people. This type is featuring a relatively high share of people in the working age and also shows only a moderate proportion of elderly people aged 65 years and older. Nonetheless, because the labour force participation rate of Type 2 is the lowest of all types of regions (see Fig. 24), it also has to bear the highest "real" dependency ratio.

5.2.5 Economic Activity (Occupation)

Coming to the economic activity of the LFS space population, first the three main economic sectors are in the spotlight (Fig. 26). In this respect, the service sector is clearly the dominating economic activity, employing more than two thirds (67%) of the LFS space labour force. Around 28% are working in the industrial sector and the remaining five percent are working in the primary agricultural sector.

Figure 26 Economic Activity by Sector, Age 15 to 64 years (2007)



	Type 1	Type 2	Type 3	Type 4	Type 5	Type 6	LFS Space
Service	70.74	56.95	74.77	65.12	63.69	67.56	67.02
Industry	26.86	31.53	22.69	30.71	29.69	28.62	27.93
Agriculture	2.40	11.52	2.54	4.17	6.62	3.82	5.05

Data source: EU-LFS 2007 (EUROSTAT 2008)

The highest proportion of people employed in the service sector can be found in Type 1 – Euro Standard and Type 3 – Family Potentials (in both cases above 70%), while it is by far the lowest in Type 2 – Challenge of Labour Force (57%). In return, the industrial sector is the strongest in Type 2 (30.7%) and the lowest in Type 3 (22.7%). Some sharp

distinctions between the different types of regions become apparent when looking at the agricultural sector, which is considerably strong in regions of Type 2 (11.5%) and just very weak in regions of Type 1 and Type 3 (both around 2.5%).

Because these three main economic sectors do not provide enough detailed information about the actual economic activity – especially the extremely broad service sector – a further differentiation with respect to the total labour force aged 15 to 64 years and also by nationality was conducted accordingly to the more detailed ISCO-88 classification (see Tab. A5.06 and A5.07). With respect to the share of all employed persons aged 15 to 64 years in the entire LFS space, the main activities in the service sector are "wholesale and retail trade" (14.2%), "health and social work" (9.8%), "real estate, renting and business activities" (9.6%), "construction" (8.2%), "public administration" (7.2%), "education" (7.0%) and "hotels and restaurants" (4.2%).

It was already mentioned before, that regions of Type 2 – Challenge of Labour Force are featuring the highest proportions in the agricultural sector, which is only differentiating between "agriculture" and "fishing" when referring to the ISCO-88 classification (see Tab. A5.06). In the industrial sector, the relatively low shares in "manufacturing" of Type 3 – Family Potentials and Type 6 – Young Potentials (both below 15%) is most striking. When differentiating within the very broad service sector, a more refined distinction is possible by using the ISCO-88 classification. With respect to the different types of regions, some noticeable deviations from the LFS space average can be distinguished. In regions of Type 1 – Euro Standard and Type 3 – Family Potentials, for instance, the sector "health and social work" is more pronounced (both 12.3%) than in other types of regions (LFS space avg.: 9.8%). The same is true for the sector "financial intermediation", although this sector is not particularly labour intensive. Employees in "private households" are overrepresented in regions of Type 4 – Challenge of Ageing and Type 6 – Young Potentials – i.e. two to three times higher compared to the LFS space average.[14] Moreover, in regions of Type 6, the sectors "construction" (13.3%) and "hotels and restaurants" (7.1%) are much more pronounced when compared to the LFS space average (8.2% and 4.2% respectively). The sector "real estate" (LFS space avg.: 9.6%), is however clearly underrepresented in the distinctive Eastern European regions of Type 2 (6.8%) and Type 5 (7.3%).

Considering only the foreign labour force (see Tab. A5.07), especially Non-EU citizens are clearly overrepresented in the service sectors "private households", "hotels and restaurants", "construction" and "extraterritorial organisations". Conversely, the foreign labour force of the LFS space is underrepresented in sectors like "public administration", "education", the often state-owned industrial sector "electricity, gas and water supply" and also in the agricultural sector. When differentiating by types of regions and compared to the national labour force, it is striking that the foreign labour force, especially from other EU27 countries, is clearly overrepresented in the agricultural sector in regions of Type 4 – Challenge

[14] One might doubt that all employees in private households are properly registered.

of Ageing and Type 6 – Young Potentials. By comparison, in the industrial sector "manufacturing" foreign citizens are featuring a relatively high proportion in Type 1 – Euro Standard, Type 4 – Challenge of Ageing, and also in regions of Type 5 – Challenge of Decline. When speaking about the above-mentioned high share of foreign workers in the service sector "construction", this applies to all types of regions, besides Type 1 – Euro Standard, where this sector is quite evenly stocked with nationals and foreigners.

5.3 Socio-Economic Characteristics by Type of Region

Hereafter, the six main types of the demographic typology will be discussed individually as well as in comparison by the socio-economic indicators obtained from the EU-LFS 2007 data set, complemented by GDP data from the period 2001 to 2005.

5.3.1 Type 1 – Euro Standard

Demographically speaking, Type 1 – Euro Standard is relatively close to the ESPON and LFS space average in respect to the variables used for the demographic typology: the share of the age groups 20 to 39 years and 65 years and older, as well as the components of population development, i.e. the natural population balance and the net migration rate-

In terms of economic performance, Type 1 – Euro Standard shows an above average GDP-PPP per capita level of 109% in relation to the EU27 average (= 100), spanning from 67% (Sicily) to 143% (Antwerpen). Like other regions with above average GDP levels, the regions of this type featured a below average annual GDP growth of 2.9% between 2001 and 2005 in respect to the entire LFS space (3.9%).

Type 1 – Euro Standard has a foreign population of nearly 9 million people. This is largest migrant stock of all types of regions, while the share the foreign population of 5.7% is just above the LFS space average of 5.1%. The vast majority of the foreign population are living since 10 years or more in this type of regions.

Referring to the highest formal education of persons above age 15, Type 1 is featuring above average shares of (upper) secondary (51.3%) and tertiary educated people (20.6%). Unlike in other types of regions, the national population of Type 1 shows higher proportions of tertiary educated people, compared to foreigners with a EU27 citizenship. People above age 15 with no formal education (0.8%) are literally imperceptible in this type of regions.

The unemployment rate of Type 1 (6.3%) is below the LFS space average, whereas the unemployment rate of the foreign labour force – EU27 citizens (7.6%) and Non-EU citizens (15.5%) – is slightly above the LFS space average. The labour force participation rate of 69.0% is the highest of all types of regions, especially those of women (63.0%) is far above the LFS space average (58.4%). Only the labour force participation rate of Non-EU citizens (53.8%) is below the overall average of 59.3%.

In regard to the economic activities of the labour force, Type 1 has the second highest share of people employed in the broad service sector (70.7%) and particularly in the "health and social work" sector (12.3%). Focussing on the economic activity of the migrant's workforce of Type 1, foreign citizens are clearly overrepresented within services like "hotels and restaurants" and "private households" and also in the "manufacturing" industry, but underrepresented within service sectors like "public administration" and – speaking especially of Non-EU citizens – "financial intermediation" and "education". Besides that, employees with a foreign citizenship are only rarely working in the agricultural or industrial sector.

5.3.2 Type 2 – Challenge of Labour Force

This type of regions can be demographically characterised by its high share of young adults, which constitutes a challenge to bring and establish these young people into the labour force.

Regions of Type 2 are clearly underperforming in terms of GDP-PPP per capita level with only 66% of the EU27 average. On the one hand, Type 2 includes Bulgarian and Romanian regions with a GDP-PPP level of less than 30% of the EU27 average and, on the other hand, Western European urban regions like Hamburg with a GDP-PPP per capita level, which is twice as high as the EU27 average. Apart from that, the annual average GDP-PPP growth rate between 2001 and 2005 (5.7%) is the highest of all types of regions, whereby those regions with the lowest GDP-PPP level do show the highest annual growth rates of 10% and more. Besides the lowest GDP-PPP level of all types of regions, Type 2 also features the lowest share of foreign population (1.4%). The majority of this migrant population is already established since 10 years or longer in regions of Type 2, which is a clear indication that no significant in-flows occurred in recent years.

Although less than one third of the population (aged 15 years or older) has only a basic or no formal education, the share of tertiary educated people (14.8%) is still below the LFS space average (18.8%). Hence, the share of the population with secondary education (51.7%) is the highest of all types of regions. Looking only at the younger adults with a tertiary education, this share has already nearly reached the LFS space average. Interestingly, although irrelevant by quantity, the foreign population shows a significantly higher share of tertiary educated people compared to the national population.

Speaking of the labour status of Type 2 – Challenge of Labour Force, the unemployment rate was 8.3% by 2007, and thus just one percentage point above the LFS space average. Focussing on the younger labour force, the strong age group between 15 to 24 years has to bear an unemployment rate of 18.7%, which is the highest youth unemployment rate of all types of regions. Despite that, Type 2 also has the lowest labour force participation rate, especially in the younger age groups (27.1%), when compared to LFS space average (37.6%). But then again, the labour force participation of people aged 65+ (6.6%) is the highest, especially for men (9.4%).

With respect to economic activities, Type 2 shows the highest proportion of people working in the agricultural (11.5%) and industrial sector (31.5%) and the lowest in services (57.0%). Further differentiated, the high proportion of employees in the industrial sector can be traced back to a relatively strong mining industry, besides an overall high share of employees in the manufacturing sector. Contrary to that, many service sectors show below LFS space average proportions of employees (i.e. "private households", "health and social work", financial intermediation", "real estate, renting and business activities" and "hotels and restaurants"). Despite the minor stock of foreign population, their workforce seems to be concentrated in just a few sectors. Above all, there is a considerable concentration in the sector "private households", where the share of migrant workers is 20 to 25 times higher when compared to the national population.

5.3.3 Type 3 – Family Potentials

The demographically motivated title of Type 3 – Family Potentials refers to the relatively young age structure and the strictly positive natural population balance between 2001 and 2005.

In 2005, the average GDP-PPP per capita level of Type 3 regions amounted to 124% of the EU27 average and is the highest of all types of regions, ranging from 68% in Puglia to 264% in Luxembourg. The average GDP-PPP growth rate between 2001 and 2005 of 2.6% per year is, however, below the LFS space average. Contrary to the overall trend of high GDP growth in regions with low GDP levels, those regions with the lowest GDP levels – i.e. the Italian regions of Puglia and Campania – also have the weakest GDP growth (-0.1% and 0.5%), while some regions with high GDP levels also feature above LFS space average GDP growth, e.g. London, Stockholm, and especially Luxembourg with an average annual GDP-PPP growth of 6.3%.

Regions of Type 3 – Family Potentials have the second highest proportion of foreign population (6.9%), of which nearly two thirds are residing in this type of region since more than 10 years. Similar to Type 1 – Euro Standard, two out of three immigrants do have a Non-EU citizenship.

With respect to the human capital stock, the proportion of tertiary educated people amounts to 22.9% (LFS space average: 18.8%) and is increasing strongly in younger ages – at the age of 35, for instance, this share is around 37%. The proportion of higher educated EU27 citizens, living in these types of regions, is 27% and hence also clearly above the LFS space average. The remarkably high share of younger adults with higher education is even more contrasted from the LFS space average. Apart from that, the proportion of people with no formal education is relatively high (2.4%).

The unemployment rate of 6.8% is relatively low, as is the unemployment rate of older workers aged 55 to 64 years of 4.3%. The youth unemployment rate of 14.8% is also below the LFS space average (15.3%). Remarkably, the female youth unemployment rate is below those of young men. Furthermore, the average duration of unemployment

is rather short-termed at all ages. With respect to the foreign labour force, the unemployment rate of EU27 citizens (6.3%) is even below those of the national labour force (6.5%) – a phenomenon unique to Type 3. In general, the labour force participation rate is matching the LFS space average closely. In fact, the labour force participation rate of EU27 citizens of more than 70% is outstanding when compared to other types of regions.

When it comes to economic activities, Type 3 – Family Potentials features the strongest service sector (74.8%), and thus the weakest agricultural and industrial sectors. Within the broad service sector, especially "financial intermediation", "real estate, renting and business activities" and "health and social work" are much more pronounced compared to the LFS space average. Looking at the differences between the national and the foreign workforce, above all, immigrants are overrepresented in sectors attributed to the secondary labour market, for instance in the "private households" sector. Differentiated by origin, especially EU27 migrants are employed in "construction", whereas Non-EU migrants are overrepresented within sectors like "hotels and restaurants", "real estate, renting and business activities", and also in the "mining" sector.

5.3.4 Type 4 – Challenge of Ageing

A considerable high proportion of elderly people aged 65 years and older is distinguishing this type of regions from the others. Besides that, Type 4 has a slightly negative natural population balance. A strong in-migration surplus is the driver of the prevalent positive population development.

The GDP-PPP per capita level is matching the EU27 average and is slightly above the LFS space average. Compared to other types of regions, Type 4 has only a relatively narrow regional GDP-PPP variance, ranging from 64% of the EU27 average in Portugal's Centro region to 136% in Lombardia. The average GDP-PPP per capita growth between 2001 and 2005 (1.85% p.a.) was only half of the LFS space growth. Further differentiated, many Italian regions of Type 4 had a negative or only a very weak GDP-PPP growth (of less than 0.25% p.a.), while Spanish Type 4 regions featured annual growth rates of 5% and more.

As mentioned above, this type of regions is experiencing a strong in-migration resulting in a proportion of the population with a foreign citizenship of 5.7%, which equals Type 1. The majority of the foreign population just immigrated recently (less than 5 years ago) and is of Non-EU origin. The relative high share of young migrants below age 20 from Non-EU countries is a peculiarity of this type of region.

More than 50% of the population aged 15+ only have a basic or no formal education at all. The share of the latter (4.3%) is the highest and the proportion of tertiary educated people (13.8%) is the lowest of all types of regions. In regard to the foreign population, the educational composition is similar to the LFS space distribution: EU27 citizens are better educated and Non-EU migrants are less educated in comparison to the national population.

Type 4 – Challenge of Ageing has the lowest overall unemployment rates (5.4%), while the gender gap is the widest: 4.2% for men and 7.0% for women. The same is true in respect to the youth unemployment rate (15.6%), which is 13.2% for men and 17.1% for women. Apart from that, also the unemployment rate of the foreign labour force is the lowest of all types of regions, especially those of Non-EU citizens (10.2%). Beyond that, the majority of all unemployed persons are short-term unemployed. In general, the labour force participation rate corresponds to the LFS space average and is relatively balanced in regard to the national population, EU27 and Non-EU citizens.

The distribution of the labour force with regard to the economic activity is comparable to those of the entire LFS space, only the sectors "hotels and restaurants", "private households" and especially "fishing" are stronger represented. Like in other types of regions, foreign citizens are overrepresented in sectors like "private households" (ten times more than the national workforce), "construction" and "hotels and restaurants", and especially EU27 citizens – contrary to other types of regions – also in the agricultural sector.

5.3.5 Type 5 – Challenge of Decline

The title of Type 5 – Challenge of Decline refers to a strictly negative population development, driven by both a negative natural population balance as well as a negative net migration rate. Together this leads to a significant population decrease coupled with population ageing.

In terms of economic performance by 2005, the average GDP-PPP per capita level was similar to Type 2, and thus below the LFS space average. The regional bandwidth ranges from just 27% of the EU27 average in Severozapaden to 157% in Bremen. By contrast, the annual average GDP-PPP per capita growth rate between 2001 and 2005 of 4.7% is above LFS space average – again very similar to Type 2. It ranges from 0.5% in Molise up to 11.5% in Estonia.[15] The share of the foreign population of 2.2% is rather small, whereby Non-EU citizens are dominating by a factor of 4. Just around 20% of the foreign population stock migrated during the last 10 years to regions of Type 5.

At first glance, the educational composition of Type 5 looks well off by matching the overall LFS space population. Looking at the higher educated population by age, one stumbles over the fact that it is, in fact, not increasing by younger ages, as it does in all other types of regions. Distinguishing by origin, the share of tertiary educated Non-EU citizens is higher than those of the national population – a phenomenon, which is unique to regions of Type 5 and Type 2.

The unemployment rate in Type 5 – Challenge of Decline (11.1%) was the highest of all types of regions in 2007. It is noticeable that the unemployment rate of older workers between 55 and 64 years (12.4%) is by far the highest, whereby the youth unemployment is just slightly above

[15] Keeping in mind, these GDP growth rates were observed before the global economic turmoil.

the LFS space average. The unemployment rate of immigrants with EU27 citizenship (16.3%) is the highest, but might be distorted by the low share of foreign population in general. Beyond that, long-term unemployment is pervasive in this type of regions. The labour force participation rate of 64.0% is just slightly below the LFS space average.

With respect to the distribution of the economic activities, Type 5 is featuring a relatively weak service sector, similar to Type 2. Thus, the agricultural and industrial sector together are absorbing more than a third of the total workforce. In the service sector, especially the number of employees within "public administration" is considerably high in comparison to all other types of regions. Conversely, some other service sectors are underrepresented, e.g. "financial intermediation", "real estate, renting and business services" and especially "private households". The relatively small foreign labour force is employed, above all, in the industrial sector.

5.3.6 Type 6 – Young Potentials

This type of regions can be demographically characterised by its relatively young age structure and the consistently positive population development of both components: a positive natural population balance and a positive net migration.

From the point of economic performance, Type 6 is matching the LFS space average, be it by GDP-PPP per capita level or by GDP-PPP growth. The regional GDP-PPP level is ranging from 80% of the EU27 average in Andalucia to 158% in Southern and Eastern Ireland. Among all Type 6 regions, Andalucia is featuring the highest annual average GDP-PPP growth of 5.9% between 2001 and 2005.

The foreign population stock of 10.8% by 2007 and the strong in-flow of migrants between 2001 and 2005 are outstanding, whereby migrants from Non-EU countries are dominating. The proportion of older immigrants (aged 50 or older), primarily from EU27 countries, is the highest of all types of regions. The vast majority of all immigrants are residing in this type of regions since less than 10 years.

The population of Type 6 – Young Potentials has the highest share of people with only basic education (52.2%), and simultaneously the highest share of people with tertiary education (23.3%), which is driven by an exceptional high share of tertiary educated younger adults below age 35. As a result the proportion of (upper) secondary educated people (22.3%) is by far the lowest of all types of regions. Similar to the national population, most of the Non-EU citizens also enjoyed only a basic education. However, the share of higher (tertiary) educated EU27 citizens (30.8%) is the highest of all types of regions.

With respect to the labour status, regions of Type 6 are featuring unemployment rates above the LFS space average: 8.0% overall and 17% for the age group 15 to 24 years. Similar to Type 4, the female unemployment rate at all ages is substantially higher compared to those of men. Around two thirds of all unemployed persons and three quarters

of the younger unemployed persons aged 15 to 24 years are short-term job seekers. Additionally, the unemployment rate of Non-EU citizens (11.1%) is the second lowest besides Type 4. The overall labour force participation rate (66.0%) corresponds to the LFS space average and the labour force participation rate of younger people aged 15 to 24 years (41.2%) is the highest overall. In general, a considerable gender gap is obvious in regard to all labour status indicators.

Looking at distribution of the labour force within the economic activities in this type of regions, the proportion of the three main sectors – i.e. agriculture, industry and services – is very close to the LFS average. When further differentiating, the share of employees in some particular sectors is deviating significantly from the overall average. The sector "private household", for instance, is employing three times more people when compared to the LFS space average. Besides that, also sectors like "hotels and restaurants" and "construction" are overrepresented. Only relatively few people are employed in the sectors "health and social work", "public administration" and "education". With respect to the foreign labour force, those is overrepresented in sectors like "private households", "hotels and restaurants", "construction", and in the agricultural sector, and is underrepresented in "public administration", "financial intermediation", "education", "health and social work", "wholesale and retail trade", as well as the industrial sector.

5.4 Comparing the Types of Regions

After discussing the socio-economic characteristics of the different types of regions, this chapter is concluding the analysis of the EU-LFS data set with a comparison of the different types of regions. For a better differentiation, Table 9 is portraying the main indicators per type of region also in relation to the LFS space average (= 100).

Table 9 Socio-economic indicators by Type of Region

	Main indicators, average per Type of Region					
Type of Region	GDP_PPP per capita in % of EU27 avg. (2005)	GDP_PPP growth (% p.a. 2001-2005)	Share of migrant population (2007)	Share of tertiary education, age 15+ (2007)	Unemployment rate in % (2007)	Labour force participation rate in % (2007)
Type 1	108.54	2.90	5.67	20.59	6.32	69.00
Type 2	66.66	5.67	1.41	14.81	8.27	60.33
Type 3	124.20	2.59	6.85	22.86	6.84	66.26
Type 4	100.50	1.85	5.67	13.80	5.39	65.22
Type 5	73.50	4.73	2.16	18.62	11.07	63.96
Type 6	107.87	4.10	10.83	23.34	8.01	65.96
LFS Space	89.16	3.91	5.05	18.80	7.19	65.39
	LFS Space = 100					
Type 1	122	74	112	110	88	106
Type 2	75	145	28	79	115	92
Type 3	139	66	136	122	95	101
Type 4	113	47	112	73	75	100
Type 5	82	121	43	99	154	98
Type 6	121	105	215	124	111	101
LFS Space	100	100	100	100	100	100

Data Source: ESPON 2013 Database & EU-LFS 2007 (EUROSTAT 2008)

Above all, this analysis of the EU-LFS 2007 data set demonstrates, that the geographical patterns revealed by the demographic typology (see Chapter 3.4) also withstand a socio-economic examination. Some (dis-)similarities can be distinguished quite well.

Type 1 & 3

The regions of Type 1 – Euro Standard and Type 3 – Family Potentials are concentrated in the central-western and northern parts of the ESPON space. Both types are featuring values close to the ESPON and LFS space average in respect to the demographic variables used in the cluster analysis. These two type of regions share some common socio-economic characteristics:

- Above average GDP-PPP per capita level (2005)
- Below average annual GDP-PPP growth rates (2001-2005)
- Above average share of migrants (by 2007)
- Above average share of tertiary educated people (2007)
- Below average unemployment rate (2007)
- Above average labour force participation (2007)

Type 2 & 5

The two distinctive Eastern European types of regions, Type 2 – Challenge of Labour Force and Type 5 – Challenge of Decline, are also covering some Western European urban regions and Northern and Southern European peripheral regions. Demographically, both types are affected by a population decrease, whereby these losses are more dramatic in Type 5, which also has to bear pronounced population ageing. In respect to the socio-economic characteristics, the similarities of Type 2 and Type 5, as listed below, are directly contrary to Type 1 and Type 3:

- Below average GDP-PPP per capita level (by 2005)
- Above average annual GDP-PPP growth rates (2001-2005)
- Below average share of migrants (2007)
- Below average share of tertiary educated people (2007); especially in Type 2.
- Above average unemployment rate (2007)
- Below average labour force participation (2007)

Type 4 & 6

The regions covered by Type 4 – Challenge of Ageing and Type 6 – Young Potentials are located mainly in the southern and western parts of Europe. Because of the strong net migration gains and hence overall population increases, both types of regions constitute demographic growth regions. The socio-economic similarities can be summarised as follows:

- Above average GDP-PPP per capita level (2005) … similar to Type 1 and Type 3.
- Above average share of foreign population (2007) … similar to Type 1 and Type 3, whereby the foreign population stock of Type 2 and Type 5 results from rather recent in-flows, contrary to Type 1 and Type 3.
- Around average labour force participation (2007)

However, these two regions cannot be aggregated and thus distinguished by means of socio-economic indicators as easily as the other two groups of regions. Some indicators do show significant differences, when comparing Type 4 and Type 6:

- GDP-PPP growth rates (between 2001 and 2005) … are above the LFS space average in Type 6 and below average in Type 4.
- The share of tertiary educated people (2007) … is above LFS space average in Type 6 and below average in Type 4.
- The unemployment rate (2007) … is above LFS space average in Type 6 and below average in Type 4.

6 Summary & Conclusions

Addressing the main research question regarding the DEMIFER Activity 2 (UNIVIE) "Typology of Regions" – i.e., how will the demographic development, i.e. natural development of population as well as migration, affect different types of regions and cities (see Chapter 1.1) – we developed a typology of NUTS 2 regions based on demographic variables (Chapter 3). This typology of the demographic status by 2005 reveals different kinds of regions by assessing the effects of demographic and migratory flows on the size and structure of the population.

6.1 Regional Typology of the Demographic Status

The demographic typology of 286 NUTS 2 regions is a comprehensive classification of the demographic structure and short-term trends in the ESPON area by 2005, based on four key variables: the share of the age groups 20 to 39 years and 65 years and over in 2005, as well as the annual average natural population increase and net migration rate during the period 2001 to 2005. These two age groups are representing the young adults and the elder population, also meeting the peak ages of mobility. The age group 20 to 39 years matches the prime reproductive age, as well as the younger working age population. The share of the age group 65+ is an indicator for the stage of ageing. The natural population balance indicates the extent of the population increase or decrease based solely on the difference between births and deaths, while the net migration rate expresses the gain or loss of population due to migration. The aggregate of both, i.e. the total population change, decides whether a population is increasing or decreasing by size.

The typology distinguishes between seven types of regions, which are affected differently by demographic and migratory flows. This classification enables one to capture the demographic diversity of European regions by 2005 at first glance (Map 1 and Figure 1).

- "Type 1 – Euro Standard" is coming close to the overall average of the ESPON area with respect to the indicators used in the cluster analysis. However, the age structure is slightly older than the average. Overall, a stagnating natural population balance and a positive net migration rate is prevalent.
- "Type 2 – Challenge of Labour Force" features a high share of population in young working ages and a slight population decline, driven by a negative natural population development.
- "Type 3 – Family Potentials" has a slightly younger than average age structure and high natural population increases, as well as a positive net migration rate.
- "Type 4 – Challenge of Ageing" is characterised by older populations and natural population decreases. Nevertheless, the overall population size is still increasing due to a strong net migration surplus.

- "Type 5 – Challenge of Decline" is shaped by a negative natural population balance, as well as a negative migratory balance. In consequence, this leads to depopulation accompanied by demographic ageing.
- "Type 6 – Young Potentials" features a young age structure, a positive natural population increase, as well as a strong migratory surplus.
- "Type 7 – Overseas" is featuring considerable high shares in the young ages and by far the lowest share of elder population. The strong natural population increase is more than counterbalancing the negative migratory balance.

Geographical Patterns

Beyond demographic characteristics, the typology reveals spatial patterns with respect to the geographical distribution of the different types of regions, such as distinctive Northern and Western European types (Type 1 and Type 3), Eastern European and peripheral types (Type 2 and Type 5, which includes Eastern Germany) and rather Southern European types (Type 4 and Type 6, including also Ireland), as well as a non-European mainland type (Type 7, consisting of the French Overseas Territories and the Spanish exclaves of Ceuta and Melilla).

6.2 Demographic Challenges

Population decline is a demographic challenge, first and foremost, for the two distinctive Eastern European types of regions of Type 2 and even more for Type 5. All other types of regions had a positive population development during the period 2001 and 2005. These two types of regions, and also Type 4 to some extent, must be alerted by the impact of low fertility. All other types of regions have higher levels of fertility, although still below the replacement level. Only in regions of Type 7, the level of fertility is predominately around or above two children per woman. With respect to the population development, indeed all other types of regions, besides Type 2 and Type 5, were able to compensate the below replacement fertility by immigration between 2001 and 2005.

Demographic Ageing is measured by the share of the older age groups, most commonly by the age group 65 years and over, which is in general the strongest growing age groups. Above average proportions of elder populations can be observed in regions of Type 1, Type 4 and Type 5. The highest shares can be found in Type 4, which also features the highest life expectancy of all types of regions. However, in Type 4 the impacts of demographic ageing are mitigated by a strong influx of younger migrants. Although the average live expectancy in regions of Type 5 is the lowest besides Type 2, the widespread emigration of the younger is driving the already prevalent process of demographic ageing even further. In Type 1, the speed of ageing is rather moderate due to reasonable fertility rates and a predominately positive migratory balance. All other types of regions show below average shares of elderly people, supported either by higher levels of fertility (Type 3 and Type 7), or by strong migratory surpluses (Type 6). By contrast, the relatively low share of elderly in regions of Type 2 is due to the momentum originating from the last strong birth cohorts

born before 1990, and because of the lowest life expectancy of all types of regions – both characteristics are typical for Eastern European populations.

When it comes to the size of the labour force, which is almost exclusively constituted by people in the main working ages between 20 to 64 years, challenges are bound to occur in the foreseeable future in all types of regions, besides Type 2 and Type 6. The share of working age population is around average in Type 1, Type 3, Type 4 and Type 5. Only in regions of Type 7, this proportion is clearly below the average. Nevertheless, if Type 7 can prevent its high proportion of younger people from emigrating in large numbers, the share of the working age population will increase considerably in the coming years. In Type 1, Type 3 and Type 4, the share of the working age population is still increasing. However, this growth is driven by increases in the older working age population (55 to 64 years), while the proportion of younger adults (20 to 39 years) was already decreasing during the period 2001 to 2005. Only in regions of Type 5, the size of the entire working age population is already shrinking. On top of that, it is especially the decrease in the share of the younger working age population, which is the decisive factor for the shrinking labour force of Type 5. In regions of Type 2 and Type 6, the proportion of the population in working age is not only clearly above the overall average, it is even still increasing, especially the younger working age population.

6.3 Socio-economic Illustration

In the course of the analyses of the socio-economic characteristics, obtained from the ESPON 2013 Database as well as the European Labour Force Survey 2007 (Eurostat, 2008), a special emphasis was placed on the foreign population, distinguishing between national population and immigrants with a foreign citizenship, either from another EU27 country or from outside the EU27.

When differentiating by economic performance, those type of regions with GDP-PPP per capita levels above the EU27 average (by 2005), i.e. Type 1, Type 3, Type 4 and Type 6, do show GDP-PPP per capita growth rates (2001-2005) below the EU27 average. Only in Type 6, the annual average GDP-PPP per capita growth rates is close to the EU27 average. In types of regions with below EU27 GDP-PPP per capita levels, i.e. Type 2 and Type 5, quite the reverse is true. Considerable stocks of foreign populations can be found in those types of regions with above average GDP-PPP per capita levels.

The highest proportion of foreign population (by 2007) and also the strongest net migration gains (2001-2005), can be observed in regions of Type 6, and the highest stock of foreign population (2007) by absolute numbers in Type 1. There are considerable differences with respect to the origin of the foreign population, as well as in regard to the length of stay. In regions of the ESPON area, the stock of Non-EU citizens is almost twice as high as the stock of EU27 migrants. The highest proportions of immigrants from other EU27 countries can be found in Type 1 and Type 3. Differentiated by the length of stay, Type 4 and Type 6 constitute "new

demographic growth regions", as the majority of the foreign population immigrated during the last ten years. By contrast, about two thirds of the foreign population stocks of Type 1 and Type 3 is living in these kind of regions since ten years or longer.

Taking the share of tertiary educated people aged 15 years and over (by 2007) as an indicator for the human capital stock, this proportion is highest in Type 6 and Type 3, followed by Type 1. In regions of Type 5, the share of higher educated people is around the overall average, but not increasing in younger ages, as it does in all other types of regions. On average, the share of tertiary educated persons is lowest in regions of Type 2 and Type 4. With respect to the foreign population, the share of EU27 citizens with higher education is surpassing those of the national population, especially in Type 6, while Non-EU citizens are in general less educated.

By far the highest unemployment rates (2007) can be observed in regions of Type 5, followed by Type 2 and Type 6, while the unemployment is below the overall average in Type 1, Type 3 and lowest in Type 4. In general, the unemployment rate of the national population and EU27 citizens is about equal, while the unemployment rate of Non-EU citizens is almost twice as high. Long-term unemployment of one year and longer is prevalent in regions of Type 2 and Type 5, while the majority of all unemployed persons in Type 4 and Type 6 is jobless for less than six months. In regions of Type 1 and Type 3, the distribution of long-term and short-term unemployment is quite balanced. The labour force participation rate (2007) is highest in Type 1 and lowest in Type 2. All other types of regions feature participation rates close to the overall average. When differentiating the labour force participation by age, sex and origin, more pronounced distinctions are striking. The participation of the younger (15 to 24 years) and the older (55 to 64 years) is far below the average of all ages (15 to 64 years) and there is a considerable gender gap to the disadvantage of women, in fact at all ages and in all types of regions. Focussing on the foreign labour force, the participation rate of EU27 citizens is not only above those of Non-EU citizens, but even higher than those of nationals. That proves to be true for all types of regions, except for Type 5 and Type 6. With respect to Type 5, the low share of foreign population might bias this result. However, the labour force participation of the foreign population of Type 6, be it EU27 citizens or Non-EU citizens, is higher compared to those of the national working age population.

6.4 Value of the Regional Typology

Classification is an important first step in all research areas and is serving a specific purpose (cf. VICKERS 2006a:288f). The different types of regions resulting from the newly developed demographic typology are applied as input and output areas to the scenarios and projections. Beyond that, case studies were elaborated, utilising at least one region from every type of the demographic typology (see also the respective scientific reports annexed as deliverables).

In brief, the typology of the demographic status by 2005 sheds light on the prevailing demographic pluralism across Europe. At the beginning of the 21st century, the demographic landscape of European regions offers diverse and heterogeneous spatial patterns beyond traditional categories like growth and decline. The regional classification reveals the similarities within this heterogeneity. Demographic ageing, although varying by extent and rate of increase, prevails across Europe. However, population ageing and growth don't exclude each other. Only a small number of regions are affected by distinct depopulation. Indeed, in the vast majority of regions fertility levels are below replacement level, which accelerates the process of population ageing. Nevertheless, most populations are still increasing due to a moderate to strong influx of international migrants. International migration is the main driver of this predominately positive population development in most regions between 2001 and 2005. Although international migration is mitigating the speed of ageing, it might be no panacea for all demographic challenges in Europe as demonstrated by the development of the size of the working age population. In general, the share of the working age population (20-64 years) is still increasing, but the proportion of the younger workforce is already declining in many regions.

> *"(…) if population issues are to be addressed properly*
> *by policy measures, they require a prior spatial assessment."*
> *Marcia CALDAS DE CASTRO (2007:17)*

Besides the scientific applications within the DEMIFER project, this classification of 286 European regions is addressed to policy makers and researchers interested in demographic and socio-economic differences at the regional level. The information, which can be gained from the analyses based on the regional typology, might be a useful addition to perspectives often focused exclusively on the state of nation states. The European Union's Community Policies identified the ongoing demographic changes as one of the main challenges in the context of social and economic cohesion (EC 2008b:1). It is impossible to aim for 286 different policies for every NUTS 2 region. In order to obtain homogeneous spatial patterns as a point of departure, a regional classification in terms of clustering does make sense. It enables the identification of similar challenges and solutions and to compare the various impacts of different regional policies.

7 References

BACKHAUS, K., B. ERICHSON, W. PLINKE & R. WEIBER (2008), Multivariate Analysemethoden. Eine anwendungsorientierte Einführung. – Springer, Berlin & Heidelberg.

BLOOM, D., D. CANNING & J. SEVILLA (2002), The Demographic Dividend. A New Perspective on the Economic Consequences of Population Change. – RAND, Santa Monica, Arlington & Pittsburgh.

CALDAS DE CASTRO, M. (2007) Spatial Demography: an opportunity to improve policy making at diverse decision levels. – In: Population Research and Policy Review, Vol. 26, Numbers 5-6, 477-509 (December 2007)

EC (1999), ESDP – European Spatial Development Perspective Towards Balanced and Sustainable Development of the Territory of the European Union. – Office for Official Publications of the European Communities, Luxembourg.

EC (2006), EUROSTAT – OECD Methodological manual on purchasing power parities (2005 Edition). – Office for Official Publications of the European Communities, Luxembourg.

EC (2008a), Demography Report 2008: Meeting the Needs in an Ageing Society. – Office for Official Publications of the European Communities, Luxembourg.

EC (2008b), Regions 2020. An Assessment of Future Challenges for EU regions. – Directorate General Regional Policy, Brussels.

EC (2009a), Demographic Trends, Socio-Economic Impacts and Policy Implications in the European Union, 2008. – Monitoring Report prepared by the European Observatory on the Social Situation - Demography Network. Office for Official Publications of the European Communities, Luxembourg.

EC (2009b), Labour force survey in the EU, candidate and EFTA countries. Main characteristics of the national surveys. – Eurostat Methodologies and Working Papers. Office for Official Publications of the European Communities, Luxembourg.

ESPON (2005), The Spatial Effects of Demographic Change and Migration. – Final Report Project 1.1.4 Edited by M. Johansson and D. Rauhut. Luxembourg. Online at: http://www.espon.eu/mmp/online/website/content/projects/259/651/file_1198/fr-1.1.4-full.pdf. Accessed 08.01.2009.

ESPON (2008a), Demographic and migratory flows affecting European regions and cities. – DEMIFER Inception Report. Edited by Nicole van der Gaag and Joop de Beer (NIDI). The European Spatial Planning Observation Network, Luxembourg. Online at: http://www.espon.eu/mmp/online/website/content/programme/1455/2233/2236/2241/file_5632/inception_report.pdf. Accessed 08.01.2009.

ESPON (2008b), Territorial dynamics in Europe: Trends in population development. – ESPON Territorial Observation No. 1 (2008). The European Spatial Planning Observation Network, Luxembourg. Online at: http://www.espon.eu/mmp/online/website/content/programme/1455/2175/2176/2177/file_5330/espon_territorial_observation_no1_211108.pdf. Accessed 08.01.2009.

ESPON (2009), Demographic and migratory flows affecting European regions and cities. – DEMIFER Interim Report. Edited by Nicole van der Gaag and Joop de Beer (NIDI). The European Spatial Planning Observation Network, Luxembourg. Online at: http://www.espon.eu/mmp/online/website/content/programme/1455/2233/2236/2241/file_6624/demifer_interim_report-29_04-09.pdf. Accessed 20.05.2009.

ESPON (2009b), A Note on the Interrelationship between Demography and Economic Performance. – Annex A to DEMIFER. The European Spatial Planning Observation Network, Luxembourg.

EUROSTAT (2008), European Labour Force Survey 2007. – Eurostat, Luxembourg.

FABER, V. (1994), Clustering and the Continuous k-means Algorithm". – Los Alamos Science, Vol. 22, 138-144.

GÖBEL, C. & T. ZWICK (2009), Age and Productivity - Evidence from Linked Employer Employee Data. – ZEW Discussion Paper No. 09-020, Mannheim.

GOLDSTEIN, J.R. (2009), Why Populations Age. – In: P. Uhlenberg (ed.), International Handbook of Population Aging, 7-18. Springer, Berlin & Heidelberg.

JANSSEN, J. & W. LAATZ (2007), Statistische Datenanalyse mit SPSS für Windows. – Springer, Berlin & Heidelberg.

KRÖHNERT, S., I. HOSSMANN & R. KLINGHOLZ (2008), Die demographische Zukunft von Europa. Wie sich die Regionen verändern. – Berlin-Institut für Bevölkerung und Entwicklung, Deutscher Taschenbuch Verlag, München.

LUTZ, W., W. SANDERSON & S. SCHERBOV (2008), The coming acceleration of global population ageing. – In: Nature 451, 716-719.

MÜLLER, W. & M. GANGL (2000), Using LFS Data for Cross-National Research: Promises, Examples, and Problems. – Conference Paper "International Workshop on Comparative Data on Education-to-Work Transitions, OECD, 21-23 June 2000, Paris.

PRESTON, S., P. HEUVELINE & M. GUILLOT (2001), Demography. Measuring and Modelling Population Processes. – Blackwell Publishing, Malden and Oxford.

ROGERSON, P. A. (2006), Statistical Methods for Geography. – Sage Publications, London, Thousand Oaks & New Dehli.

RYDER, N. (1975), Notes on Stationary Populations. – In: Population Index 41 (1), 3-28.

RYMKEVITCH & VILLOSIO (2007), Age Discrimination in Italy. – Working Paper no. 67. LABOR, Moncalieri.

VICKERS, D. (2006a), Multi-Level Integrated Classifications. Based on the 2001 Census. – Dissertation Thesis. School of Geography, University of Leeds.

VICKERS, D. (2006b), Multi-Level Integrated Classifications. Based on the 2001 Census (Appendix: Methodology Paper). – Dissertation Thesis. School of Geography, The University of Leeds.

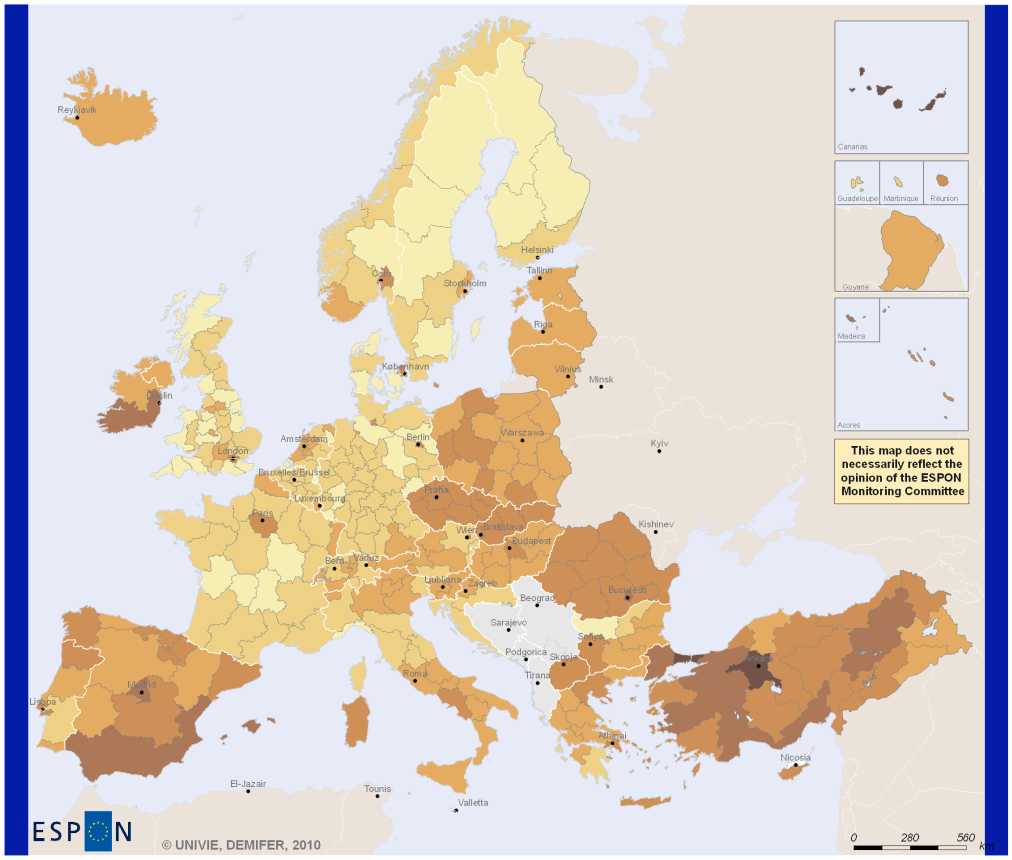
VICKERS, D., P. REES & M. BIRKIN (2005), Creating the national classification of census output areas: data, methods and results. – Working paper 05/2, School of Geography, University of Leeds, Leeds, UK. Online at: http://www.geog.leeds.ac.uk/wpapers/05-2.pdf. Accessed 01.12.2008.

Appendixes

Annex 1 – Mapping the Cluster Variables

Map A1.01

Population Aged 20-39 in 2005



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Regional level: NUTS 2
Source: ESPON 2013 Database 2010
Origin of data: Eurostat, NSIs 2008-10
© EuroGeographics Association for administrative boundaries

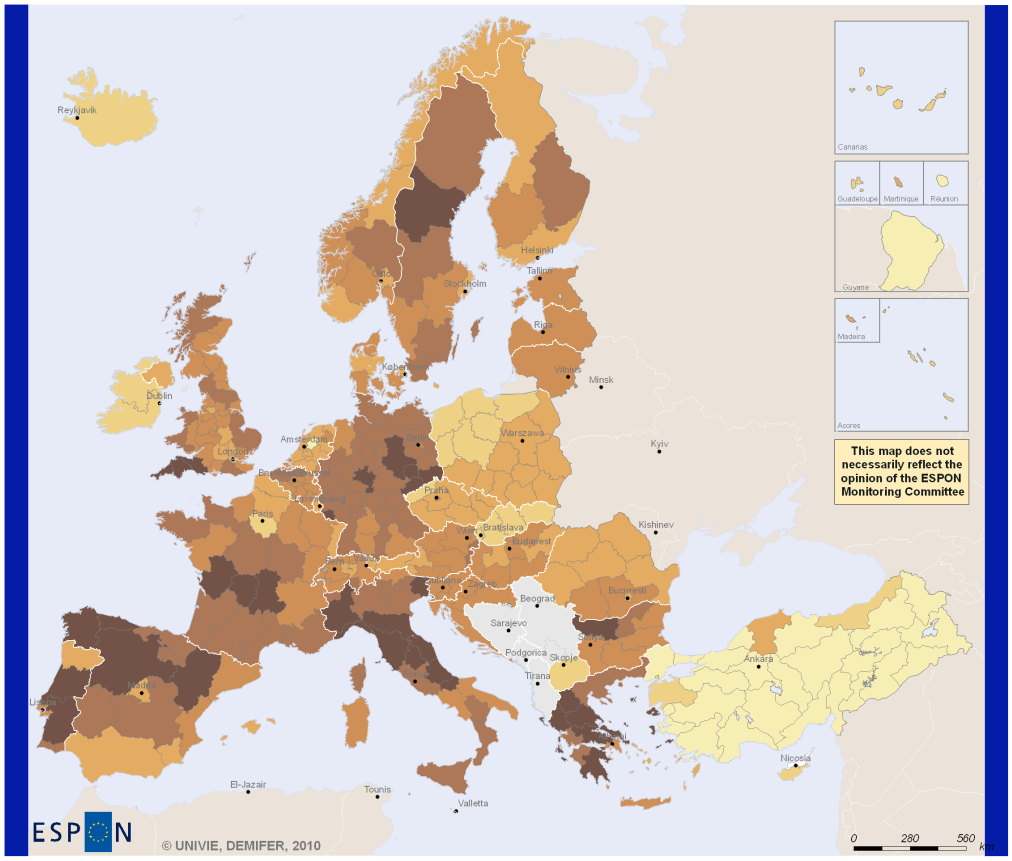
(X) = number of regions per category
Data for TR 2007

Share of Population Aged 20-39, in % in 2005

21.4 - 25.0	(41)
25.0 - 27.5	(104)
27.5 - 30.0	(83)
30.0 - 32.5	(67)
32.5 - 35.0	(18)
35.0 - 43.2	(5)
no data	

Map A1.02

Population Aged 65+ in 2005



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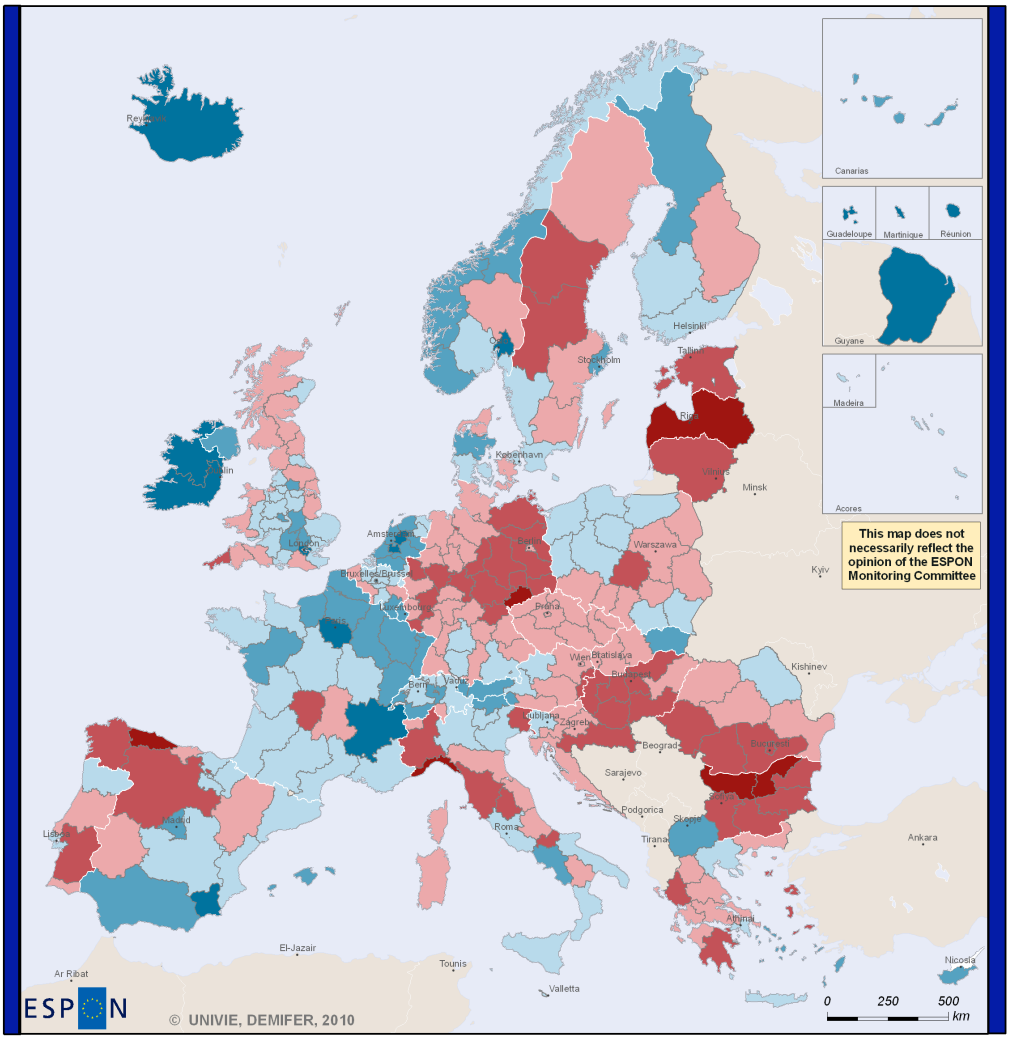
(X) = number of regions per category
Data for TR 2007

Share of Population Aged 65 Years and Over, in % in 2005

3.2 - 10.0	(27)
10.0 - 12.5	(26)
12.5 - 15.0	(65)
15.0 - 17.5	(90)
17.5 - 20.0	(74)
20.0 - 26.5	(36)
no data	

Map A1.03

Natural Population Change, 2001-2005



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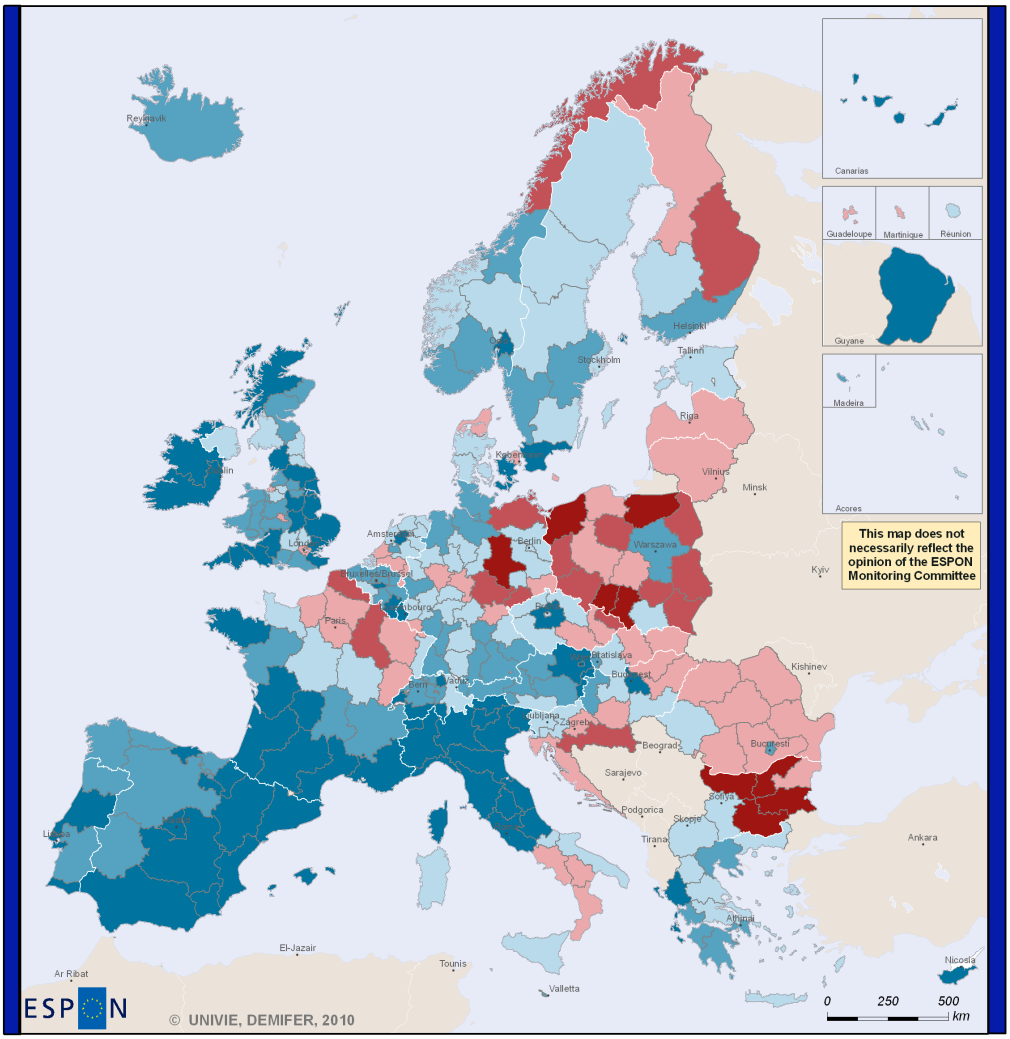
Natural Population Change per 1 000 inhabitants
Annual Average Change 2001-2005

(X) = number of regions per category

-10.4 –	-5.0	(6)
-5.0 –	-2.5	(49)
-2.5 –	0.0	(92)
0.0 –	2.5	(83)
2.5 –	5.0	(43)
5.0 –	25.3	(19)
no data		

Map A1.04

Net Migration rate, 2001-2005



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Net Migration rate per 1 000 inhabitants
Annual Average Change 2001-2005

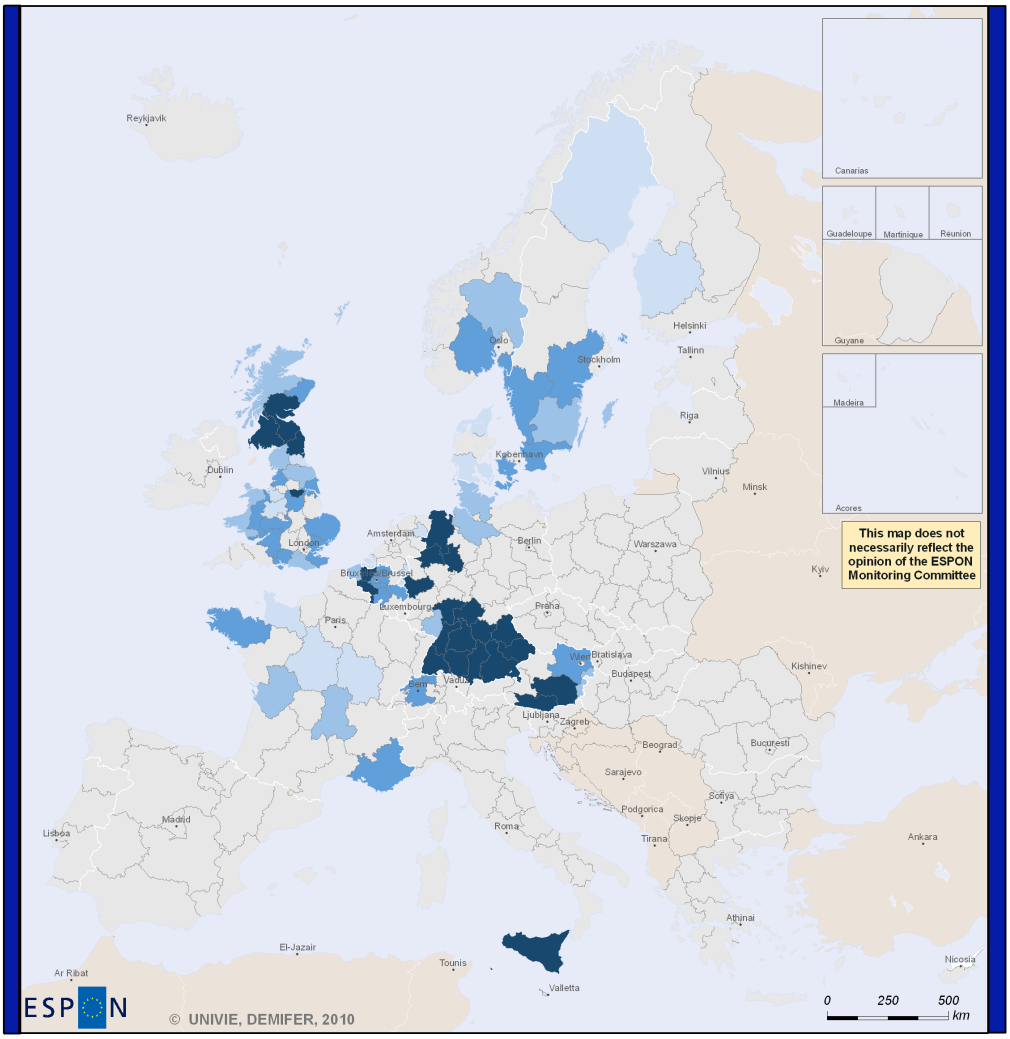
(X) = number of regions per category

-11.3 –	-5.0	(11)
-5.0 –	-2.5	(16)
-2.5 –	0.0	(47)
0.0 –	2.5	(76)
2.5 –	5.0	(67)
5.0 –	26.4	(75)
no data		

Annex 2 – Mapping the Subtypes of the Typology

Map A2.01

Euro Standard - Typology Subtypes 2005



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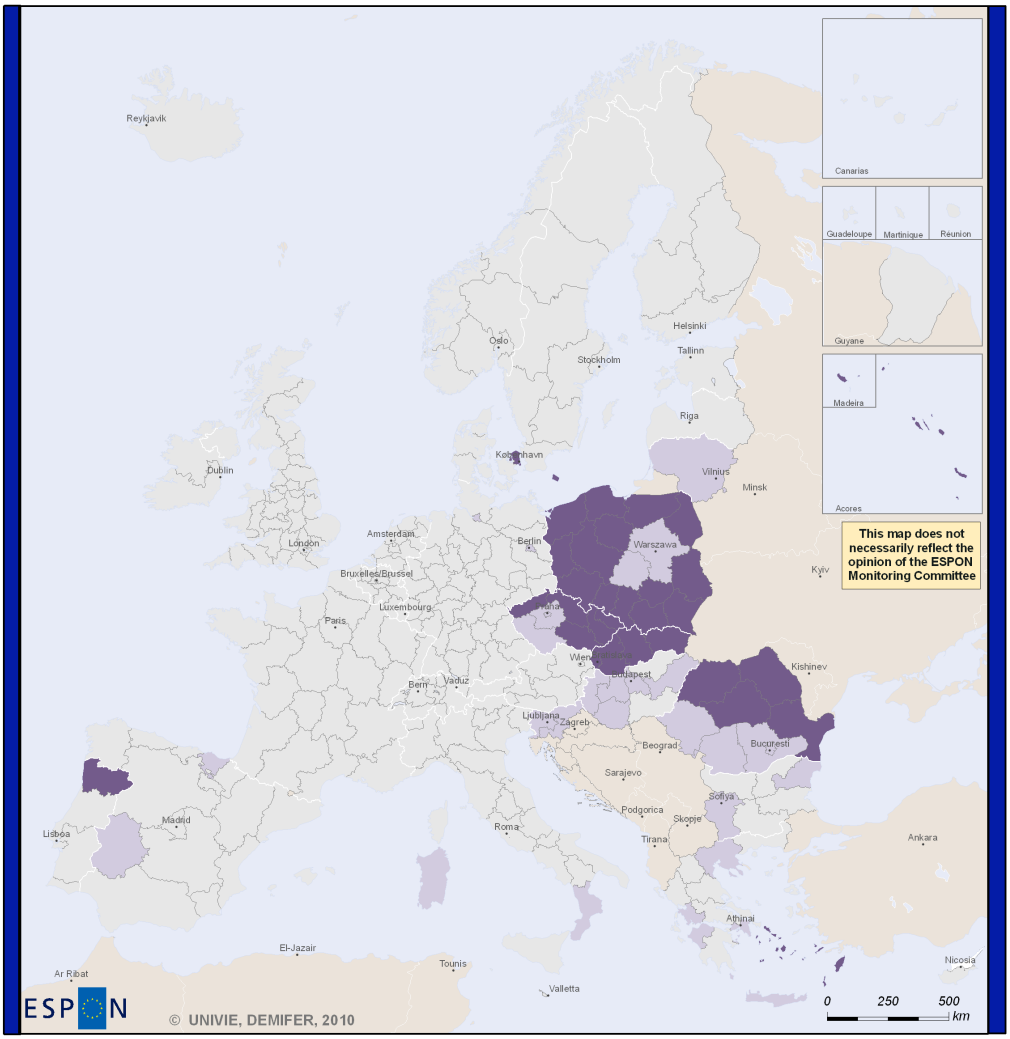
Type 1 - Euro Standard				Age Group 20-39 (%)			Age Group 65+ (%)			Natural Population Increase (per 1000)			Net Migration (per 1000)		
				2005						average per annum 2001-2005					
Type	Cases	Population		avg	min	max	avg	min	max	avg	min	max	avg	min	max
11	24	53 687 498	10.67%	26.91	26.07	28.72	17.52	16.23	18.78	-0.41	-1.52	1.06	2.32	0.50	4.78
12	27	39 697 965	7.89%	25.70	23.06	27.29	16.89	15.33	18.58	0.72	-1.00	2.20	5.18	3.17	8.80
13	14	18 349 668	3.65%	24.43	22.57	26.28	18.88	17.90	20.30	-1.31	-2.67	0.27	4.56	1.93	9.36
14	14	16 180 086	3.21%	24.76	23.73	25.76	17.06	15.76	19.46	0.69	-1.04	2.47	0.85	-2.11	3.11
Type 1	79	127 915 217	25.41%	25.68	22.57	28.72	17.46	15.33	20.30	0.01	-2.67	2.47	3.43	-2.11	9.36

Map A2.02

Challenge of Labour Force - Typology Subtypes 2005



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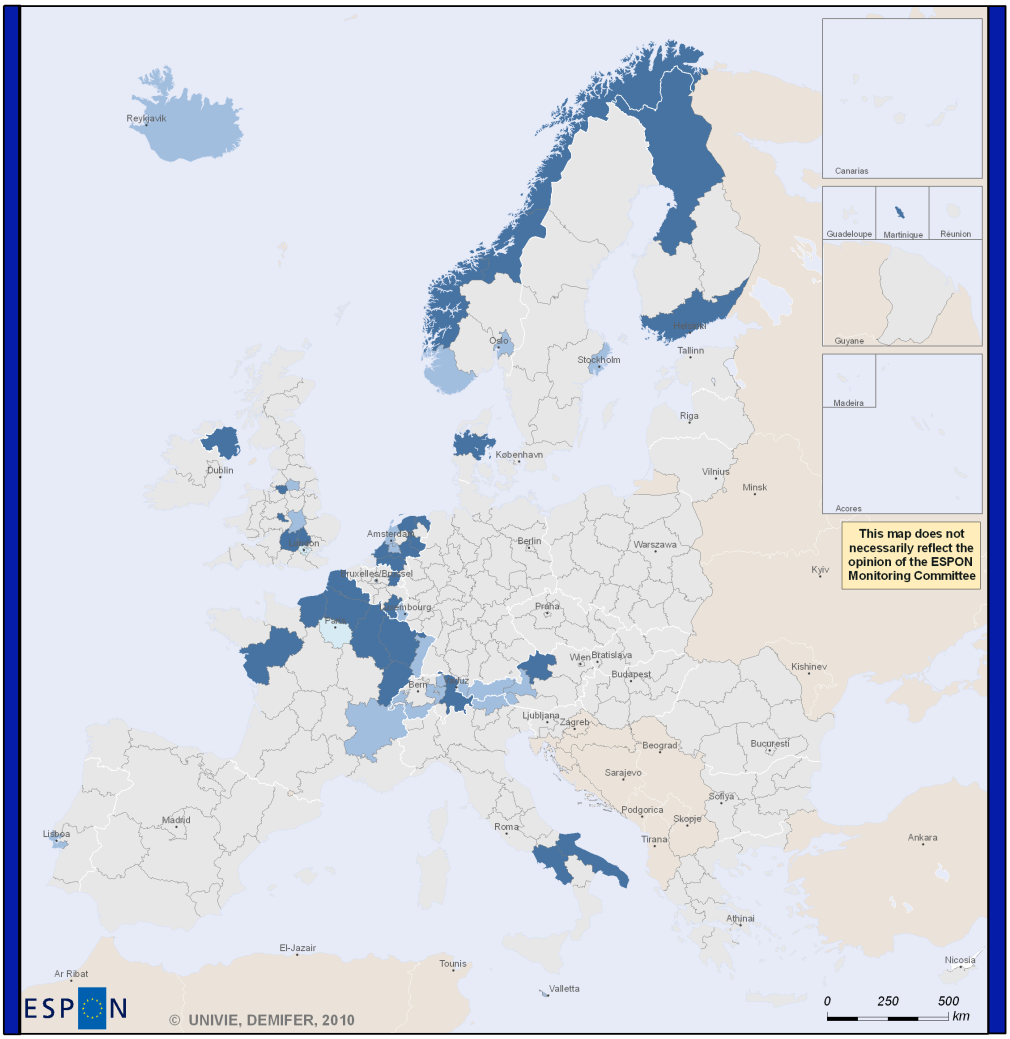
Type 2 - Challenge of Labour Force				Age Group 20-39 (%)			Age Group 65+ (%)			Natural Population Increase (per 1000)			Net Migration (per 1000)		
				2005						average per annum 2001-2005					
Type	Cases	Population		avg	min	max	avg	min	max	avg	min	max	avg	min	max
21	32	60 564 682	12.03%	30.62	28.33	33.13	13.11	10.60	14.78	0.17	-2.23	2.89	-1.56	-7.35	3.02
22	29	56 203 113	11.17%	30.22	28.35	33.84	16.05	14.13	18.96	-1.83	-4.76	2.14	1.89	-2.04	9.19
Type 2	61	116 767 795	23.20%	30.43	28.33	33.84	14.51	10.60	18.96	-0.78	-4.76	2.89	0.08	-7.35	9.19

Map A2.03

Family Potentials - Typology Subtypes 2005



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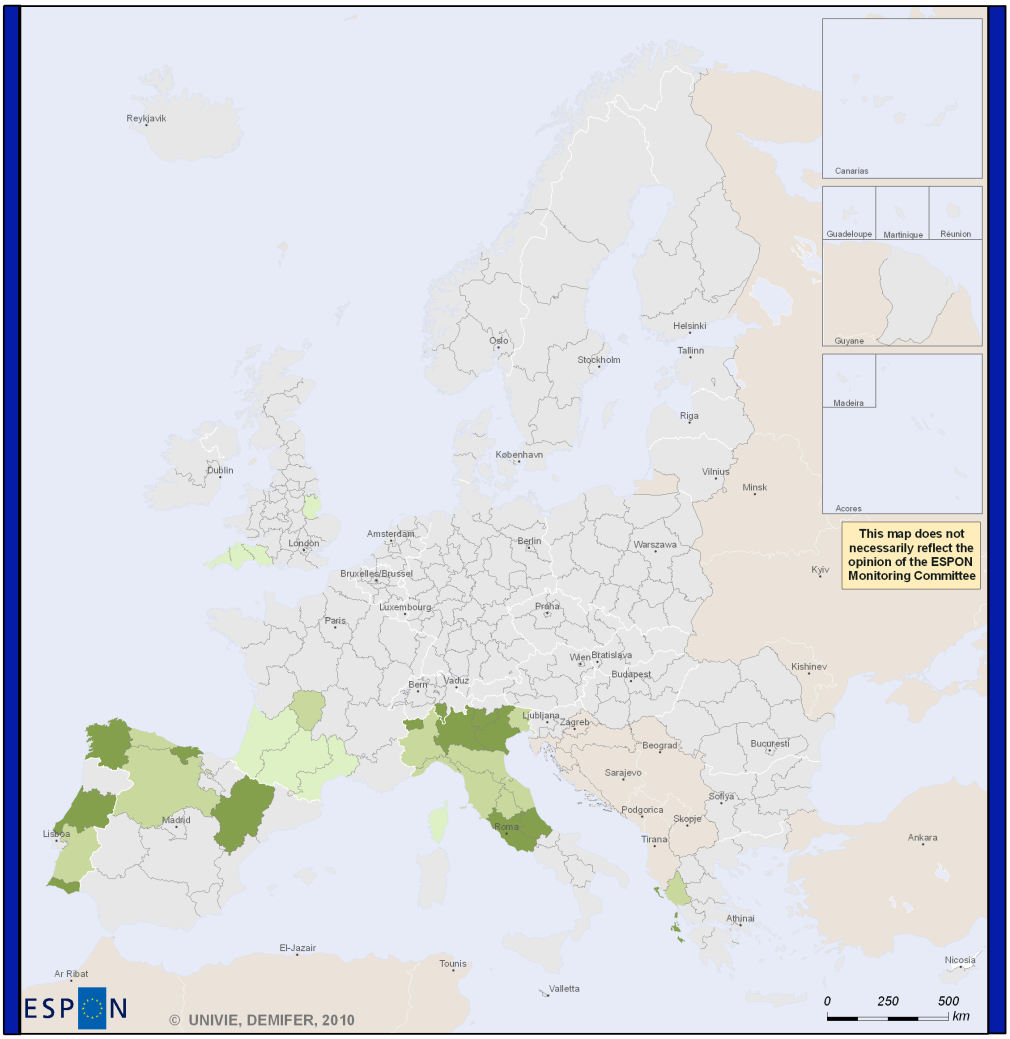
Type 3 - Family Potentials				Age Group 20-39 (%)			Age Group 65+ (%)			Natural Population Increase (per 1000)			Net Migration (per 1000)		
				2005						average per annum 2001-2005					
Type	Cases	Population		avg	min	max	avg	min	max	avg	min	max	avg	min	max
31	31	56 574 303	11.24%	27.28	24.80	30.21	15.00	13.22	16.96	3.27	1.06	6.94	0.40	-3.51	5.04
32	22	29 160 478	5.79%	28.92	26.97	31.85	14.18	11.13	16.37	3.95	1.91	8.11	4.92	1.54	9.59
33	2	18 821 819	3.74%	33.35	30.37	36.32	12.23	11.96	12.49	8.15	7.30	9.00	-2.08	-2.09	-2.07
Type 3	55	104 556 600	20.77%	28.15	24.80	36.32	14.57	11.13	16.96	3.72	1.06	9.00	2.12	-3.51	9.59

Map A2.04

Challenge of Ageing - Typology Subtypes 2005



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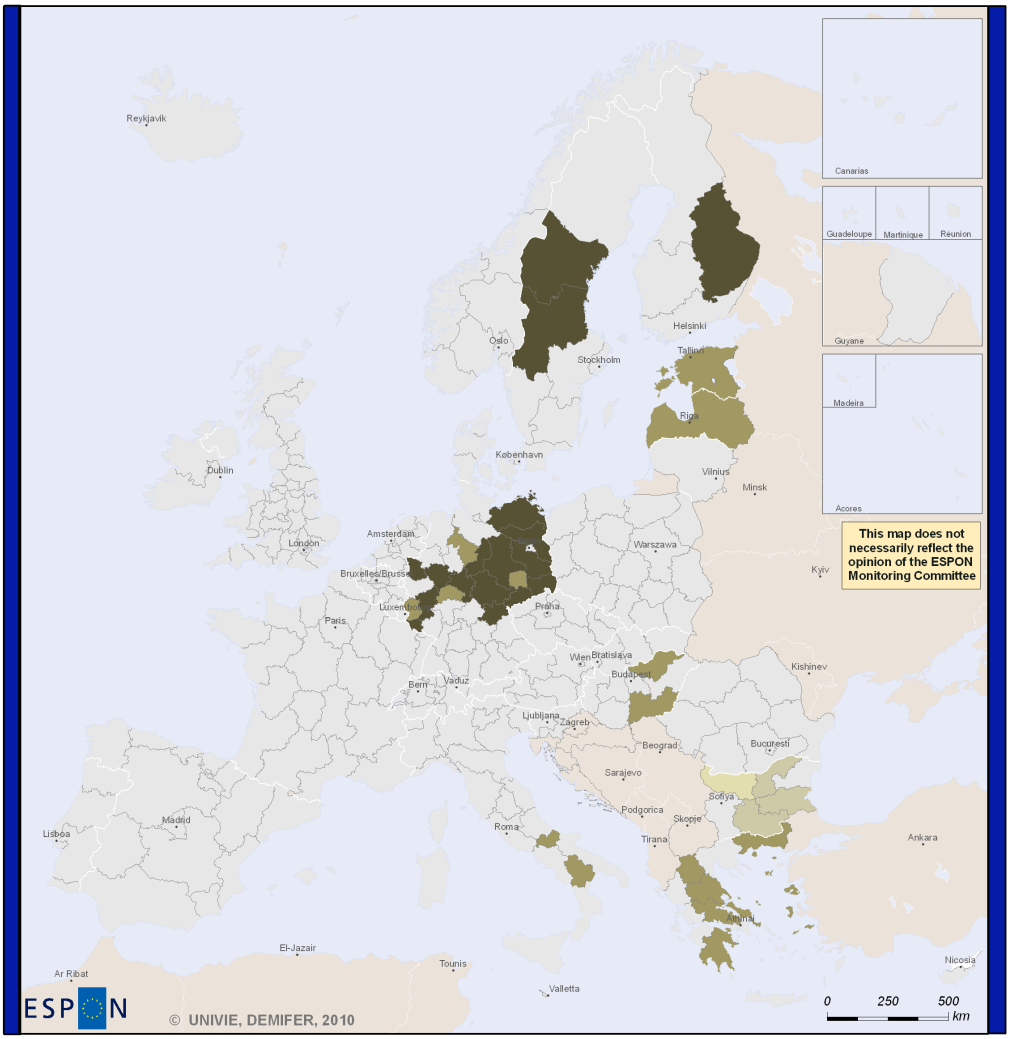
Type 4 - Challenge of Ageing				Age Group 20-39 (%)			Age Group 65+ (%)			Natural Population Increase (per 1000)			Net Migration (per 1000)		
				2005						average per annum 2001-2005					
Type	Cases	Population		avg	min	max	avg	min	max	avg	min	max	avg	min	max
41	13	29 117 817	5.78%	28.69	27.15	31.19	19.66	18.51	21.22	-0.83	-3.20	1.43	9.67	4.77	16.99
42	12	22 616 764	4.49%	26.94	23.77	29.25	22.87	21.80	26.51	-3.39	-6.19	-1.74	8.41	4.14	13.04
43	8	12 103 627	2.40%	23.79	21.52	25.53	19.69	19.06	21.24	-0.76	-2.94	1.41	10.52	7.04	13.76
Type 4	33	63 838 208	12.68%	26.87	21.52	31.19	20.83	18.51	26.51	-1.74	-6.19	1.43	9.42	4.14	16.99

Map A2.05

Challenge of Decline - Typology Subtypes 2005



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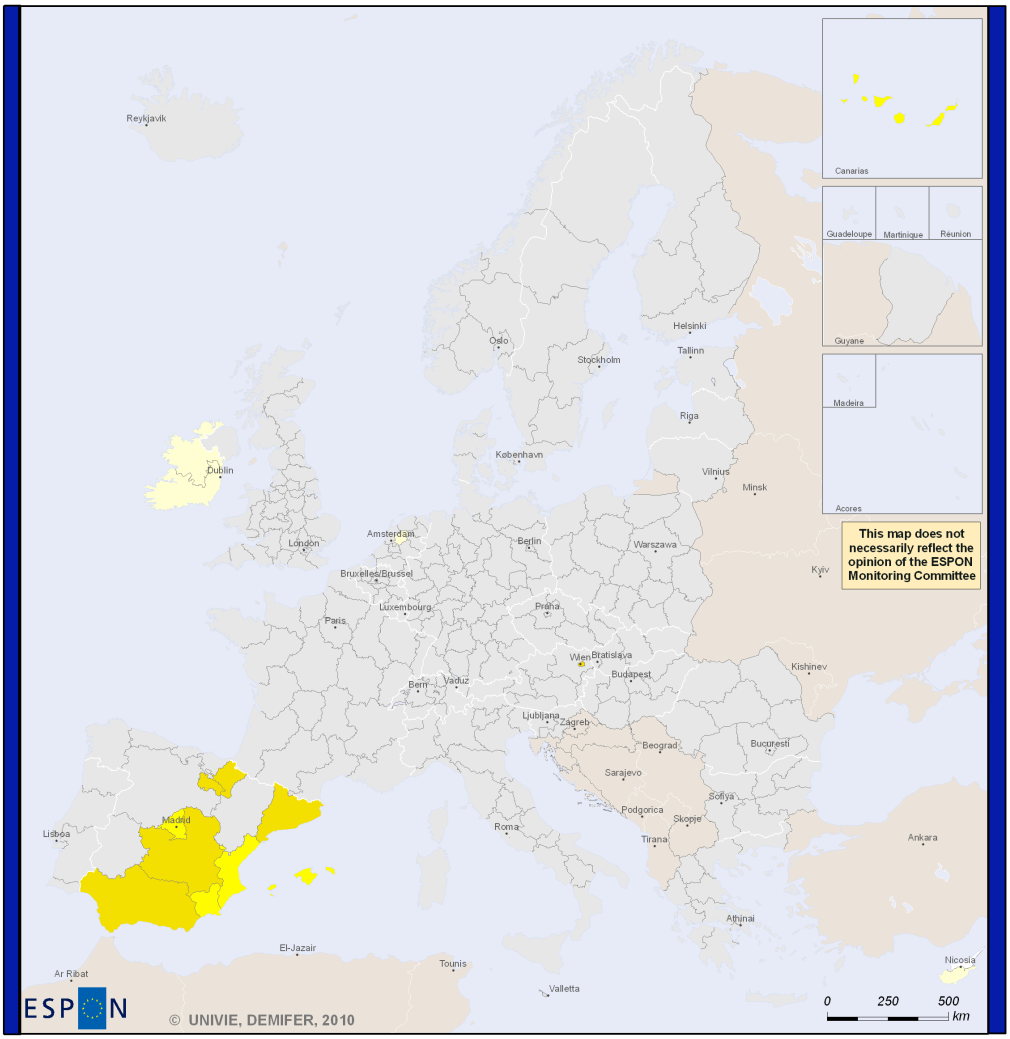
Type 5 - Challenge of Decline				Age Group 20-39 (%)			Age Group 65+ (%)			Natural Population Increase (per 1000)			Net Migration (per 1000)		
				2005						average per annum 2001-2005					
Type	Cases	Population		avg	min	max	avg	min	max	avg	min	max	avg	min	max
51	17	29 845 350	5.93%	24.69	21.47	25.99	19.88	18.66	22.55	-3.28	-5.38	-1.81	-1.20	-5.64	1.50
52	17	15 680 621	3.12%	27.86	25.92	30.04	19.40	15.89	22.48	-2.73	-5.18	-0.59	0.83	-2.30	3.70
53	3	3 667 391	0.73%	27.67	27.27	28.20	17.14	16.83	17.70	-5.44	-7.66	-4.28	-9.37	-10.59	-7.47
54	1	973 327	0.19%	23.93	23.93	23.93	21.37	21.37	21.37	-10.35	-10.35	-10.35	-11.25	-11.25	-11.25
Type 5	38	50 166 688	9.97%	26.32	21.47	30.04	19.49	15.89	22.55	-3.39	-10.35	-0.59	-1.20	-11.25	3.70

Map A2.06

Young Potentials - Typology Subtypes 2005



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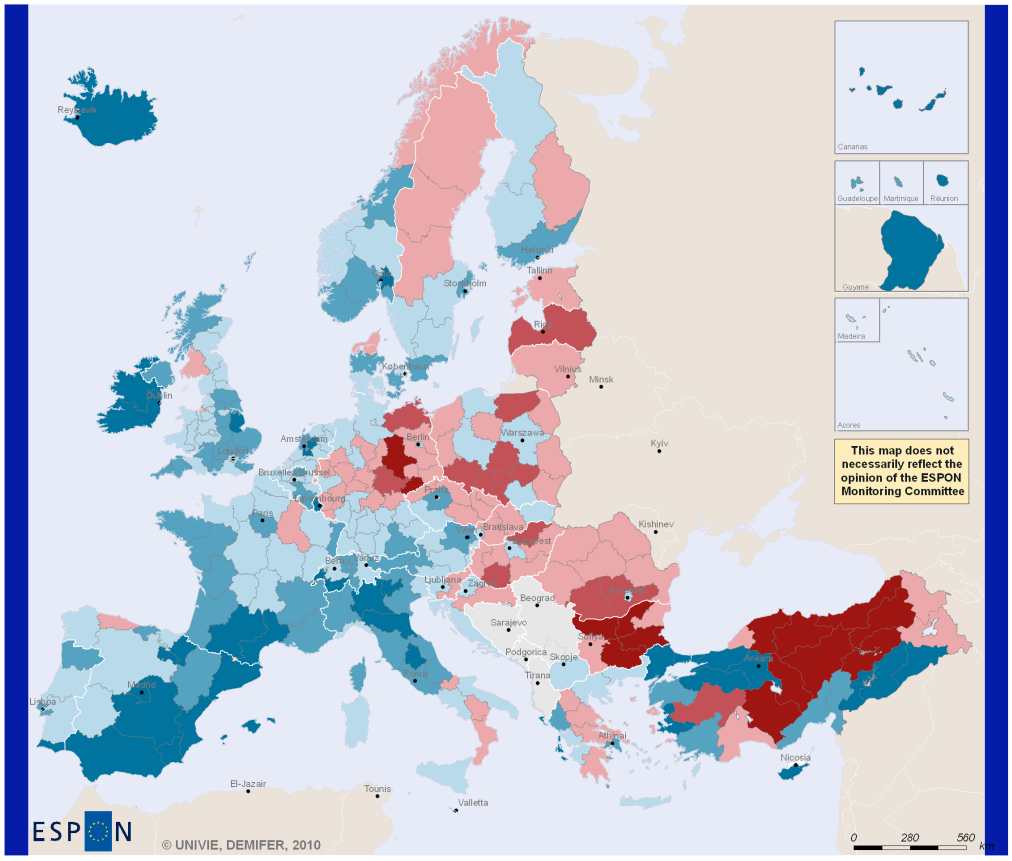
Type 6 - Young Potentials				Age Group 20-39 (%)			Age Group 65+ (%)			Natural Population Increase (per 1000)			Net Migration (per 1000)		
				2005						average per annum 2001-2005					
Type	Cases	Population		avg	min	max	avg	min	max	avg	min	max	avg	min	max
61	6	18 812 700	3.74%	31.59	30.47	33.06	17.09	14.63	19.03	1.15	-0.15	3.04	14.76	9.96	20.76
62	5	14 505 914	2.88%	34.39	33.21	35.86	14.11	12.04	16.00	3.73	1.71	5.27	22.24	19.21	26.30
63	4	5 224 207	1.04%	30.60	29.36	33.04	10.90	8.70	12.22	7.14	4.11	9.78	14.17	11.03	16.83
Type 6	15	38 542 821	7.66%	32.26	29.36	35.86	14.45	8.70	19.03	3.61	-0.15	9.78	17.10	9.96	26.30

Annex 3 – Mapping Demographic Indicators

Map A3.01

Total Population Change 2001-2005



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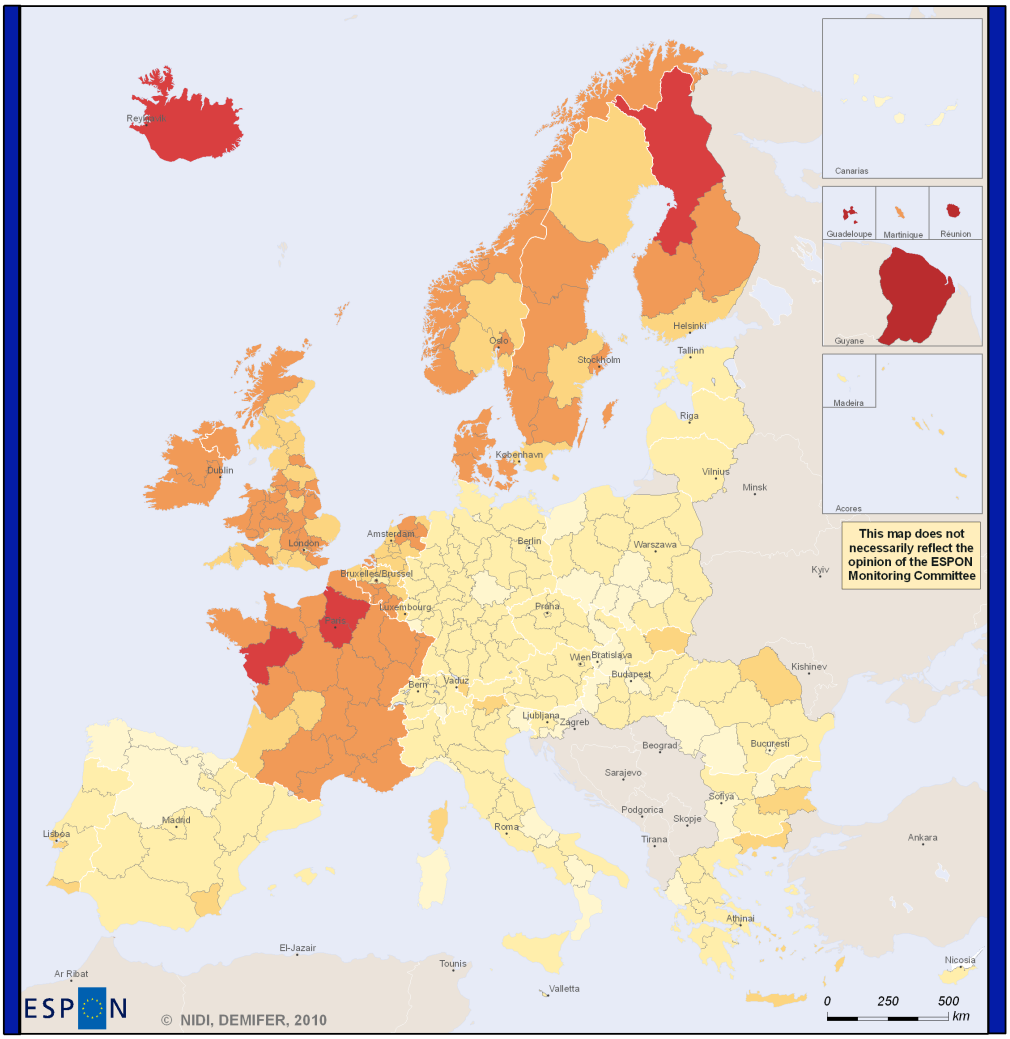
Total Population Change per 1 000 inhabitants
Annual Average Change 2001-2005,

(X) = number of regions per category

-45.6 – -10.0	(14)
-10.0 – -5.0	(14)
-5.0 – 0.0	(67)
0.0 – 5.0	(109)
5.0 – 10.0	(72)
10.0 – 44.6	(42)
no data	

Map A3.02

Total Fertility Rate in 2005



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Origin of data: Eurostat, NSIs 2008-10, NIDI, University of Leeds
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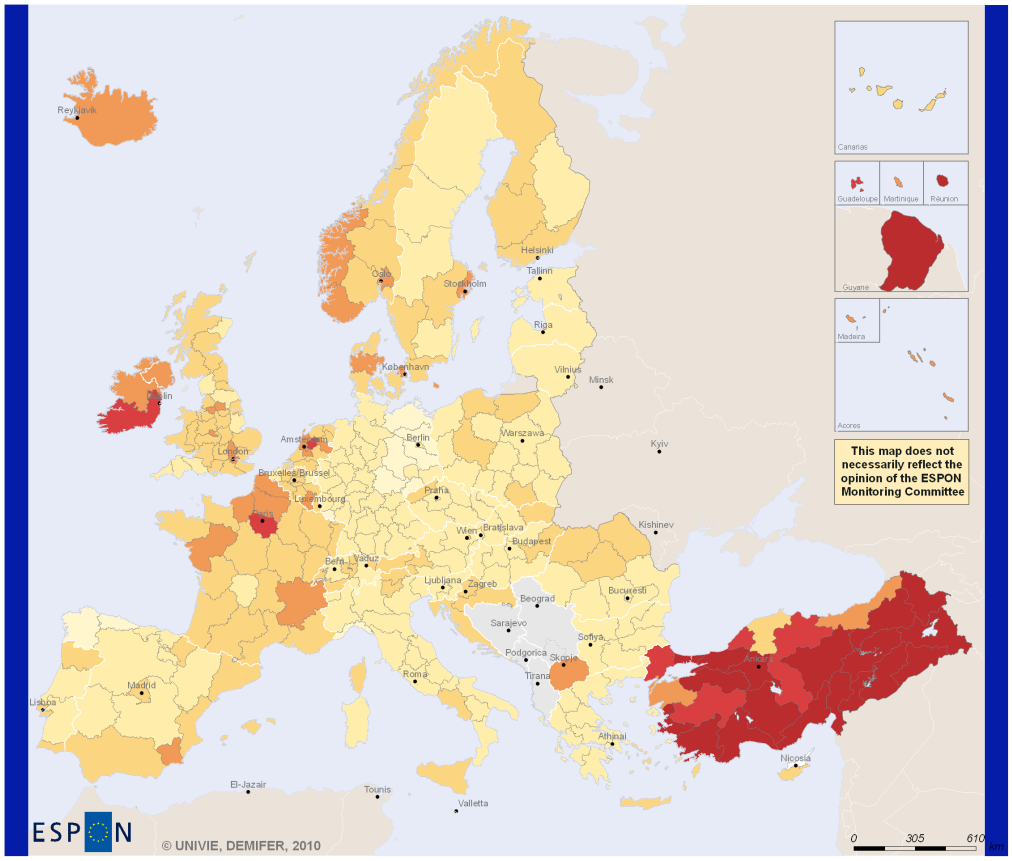
Total Fertility Rate (TFR) in 2005,
(Children per Woman aged 15-49 years)

(X) = number of regions per category

- 0.95 – 1.25 (37)
- 1.25 – 1.50 (123)
- 1.50 – 1.75 (51)
- 1.75 – 2.00 (68)
- 2.00 – 2.25 (5)
- 2.25 – 3.85 (3)
- no data

Map A3.03

Crude Birth Rate



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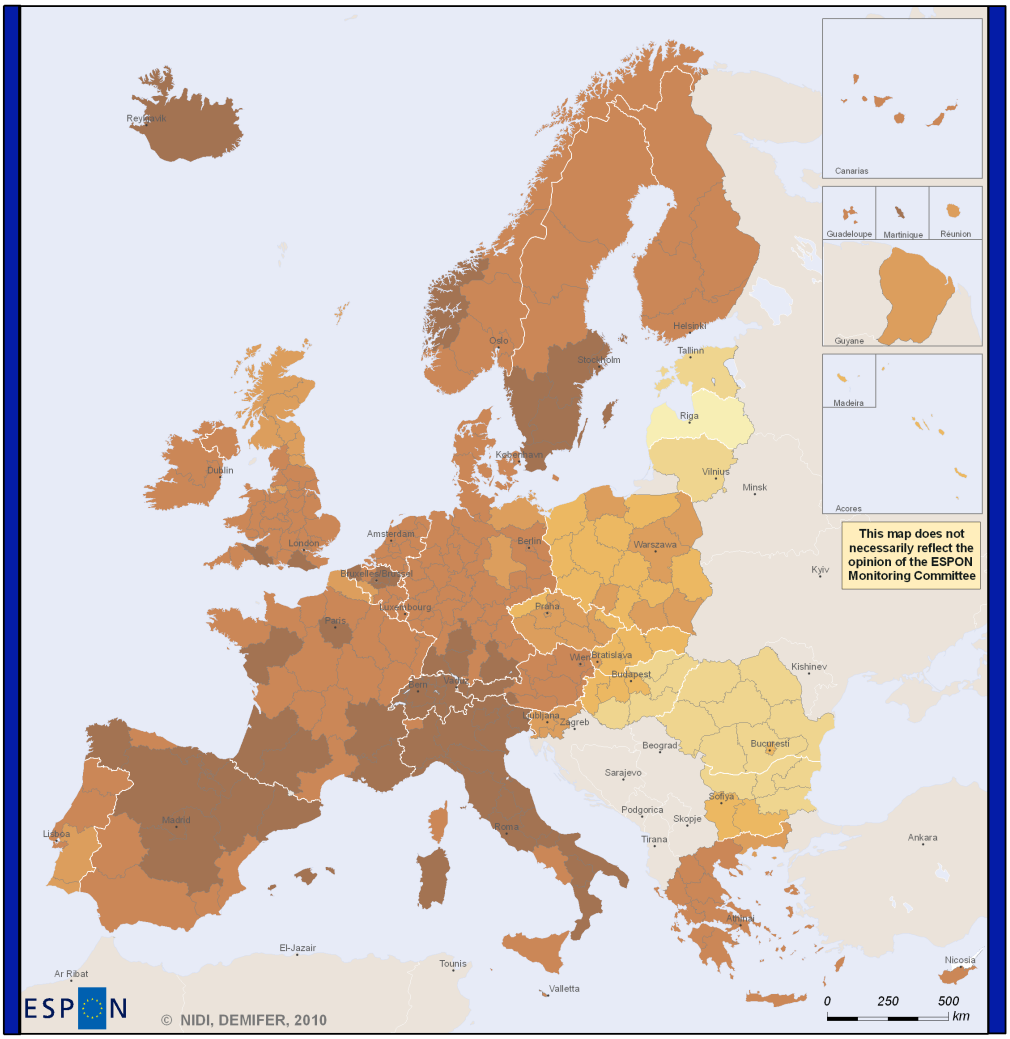
(X) = number of regions per category

Births per 1 000 inhabitants,
Annual Average Value 2001-2005

6.6 – 7.5	(10)
7.5 – 10.0	(138)
10.0 – 12.5	(106)
12.5 – 15.0	(32)
15.0 – 17.5	(12)
17.5 – 35.8	(20)
no data	

Map A3.04

Life Expectancy at Birth



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Origin of data: Eurostat, NSIs 2008-10, NIDI
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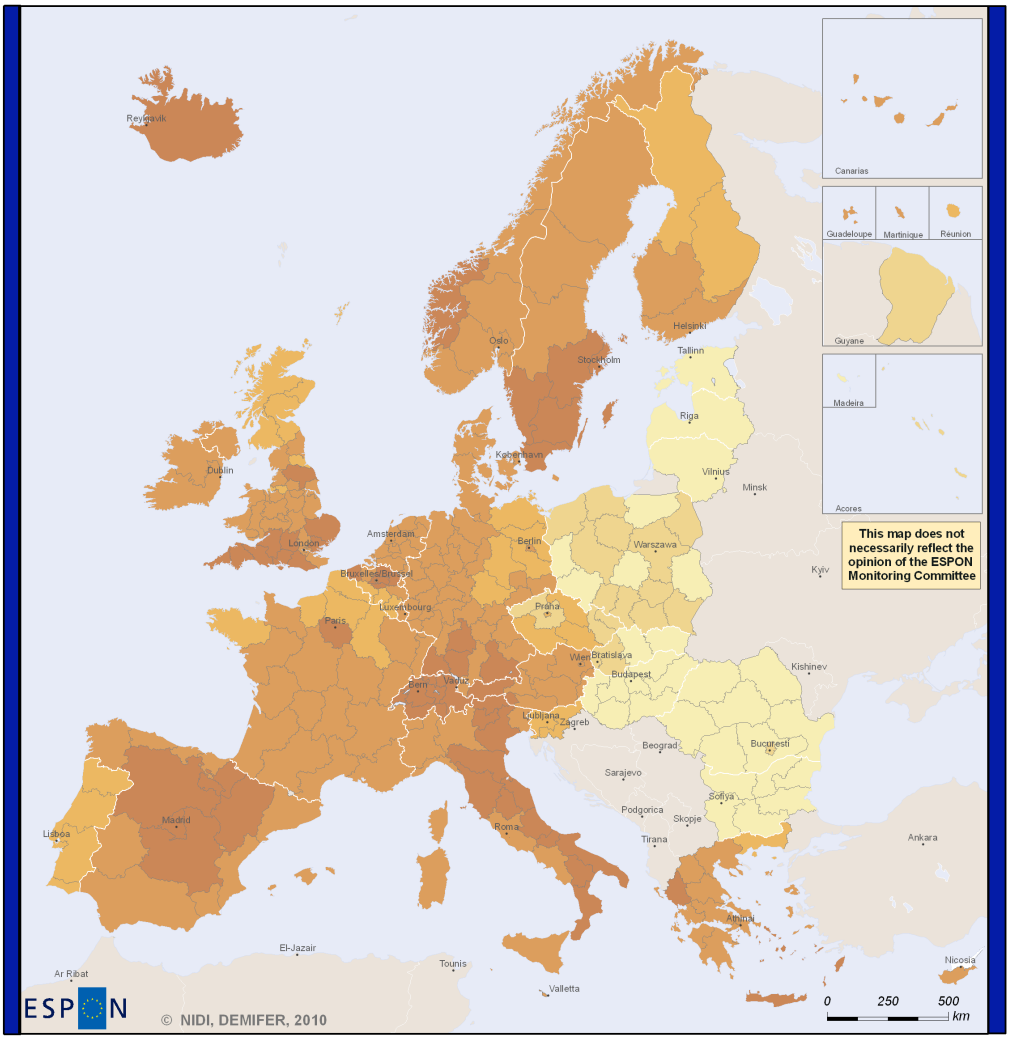
Life Expectancy at Birth
2002-2004* Average in Years

(X) = number of regions per category
Data for BG (avg. 2003-2005), RO (avg. 2006-2007)

70.8 – 72.5	(20)
72.5 – 75.0	(23)
75.0 – 77.5	(32)
77.5 – 80.0	(146)
80.0 – 82.4	(66)
no data	

Map A3.05

Life Expectancy at Birth - Men



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Males Life Expectancy at Birth
2002-2004* Average in Years

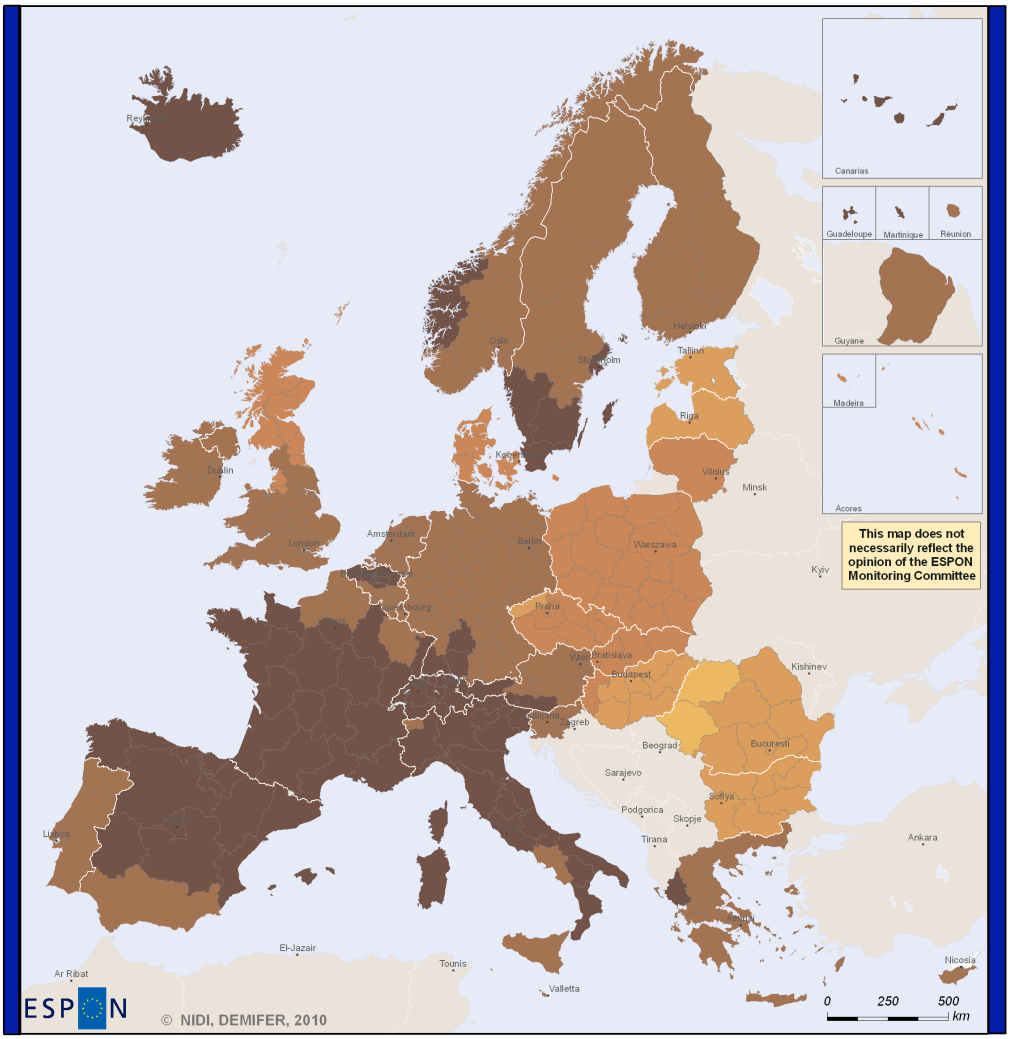
65.4 – 70.0	(34)
70.0 – 72.5	(20)
72.5 – 75.0	(35)
75.0 – 77.5	(141)
77.5 – 79.8	(58)

no data

(X) = number of regions per category
Data for BG (avg. 2003-2005), RO (avg. 2006-2007)

Map A3.06

Life Expectancy at Birth - Women



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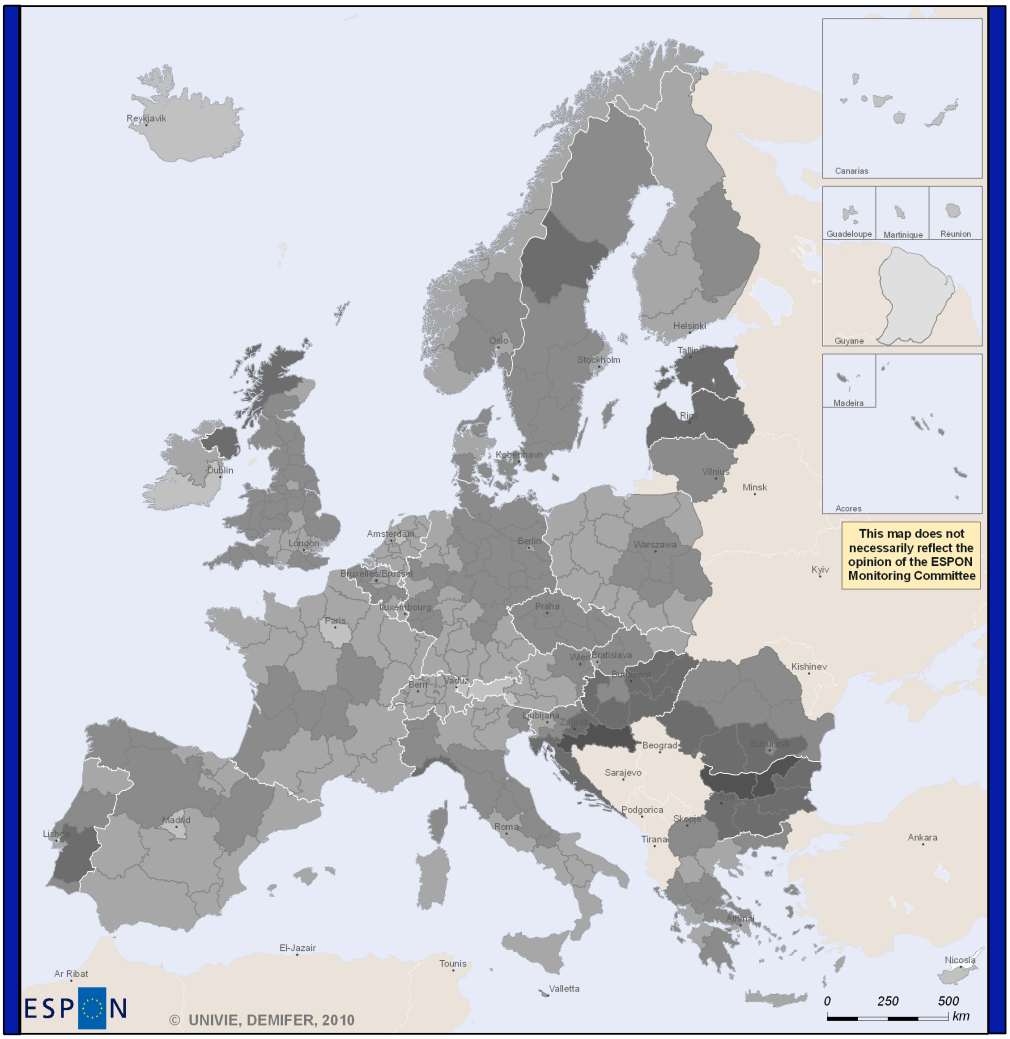
Females Life Expectancy at Birth
2002-2004* Average in Years

74.1 – 75.0	(4)
75.0 – 77.5	(21)
77.5 – 80.0	(45)
80.0 – 82.5	(136)
82.5 – 85.1	(81)
no data	

(X) = number of regions per category
Data for BG (avg. 2003-2005), RO (avg. 2006-2007)

Map A3.07

Crude Death Rate



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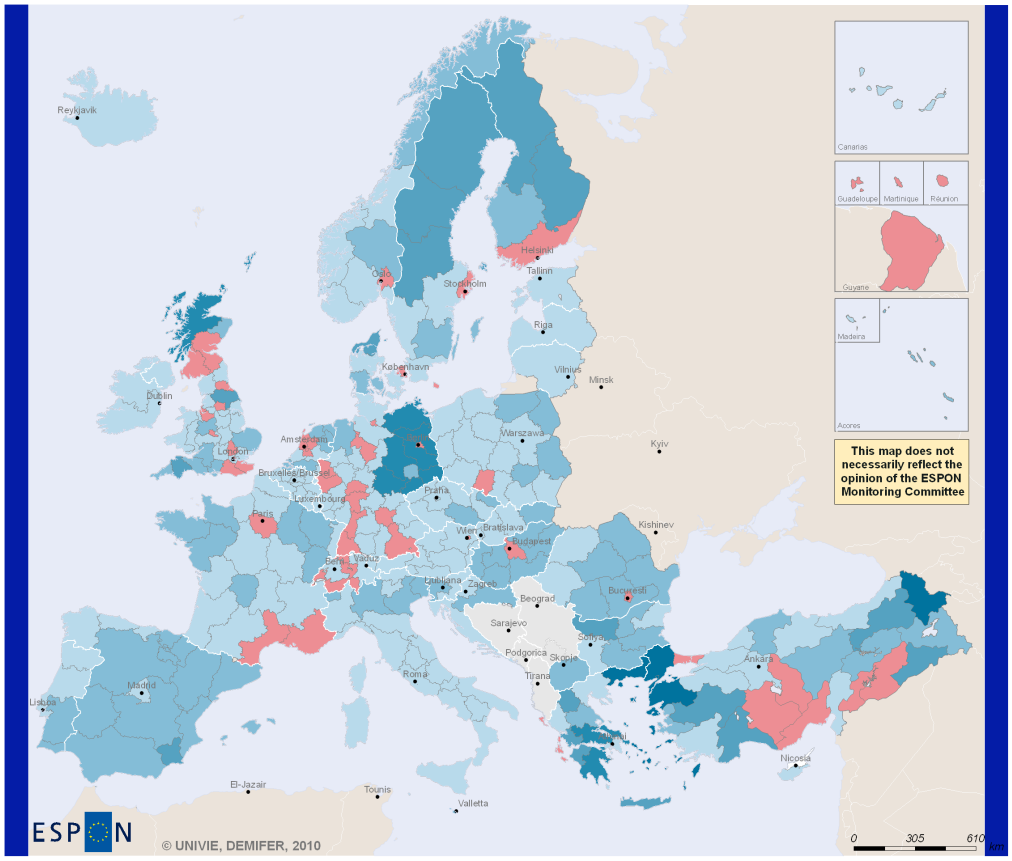
Deaths per 1 000 inhabitants,
Annual Average Value for 2001-2005

(X) = number of regions per category

- 3.7 – 5.0 (1)
- 5.0 – 7.5 (16)
- 7.5 – 10.0 (127)
- 10.0 – 12.5 (123)
- 12.5 – 15.0 (22)
- 15.0 – 18.4 (3)
- no data

Map A3.08

Sex Ratio at Age 20-29



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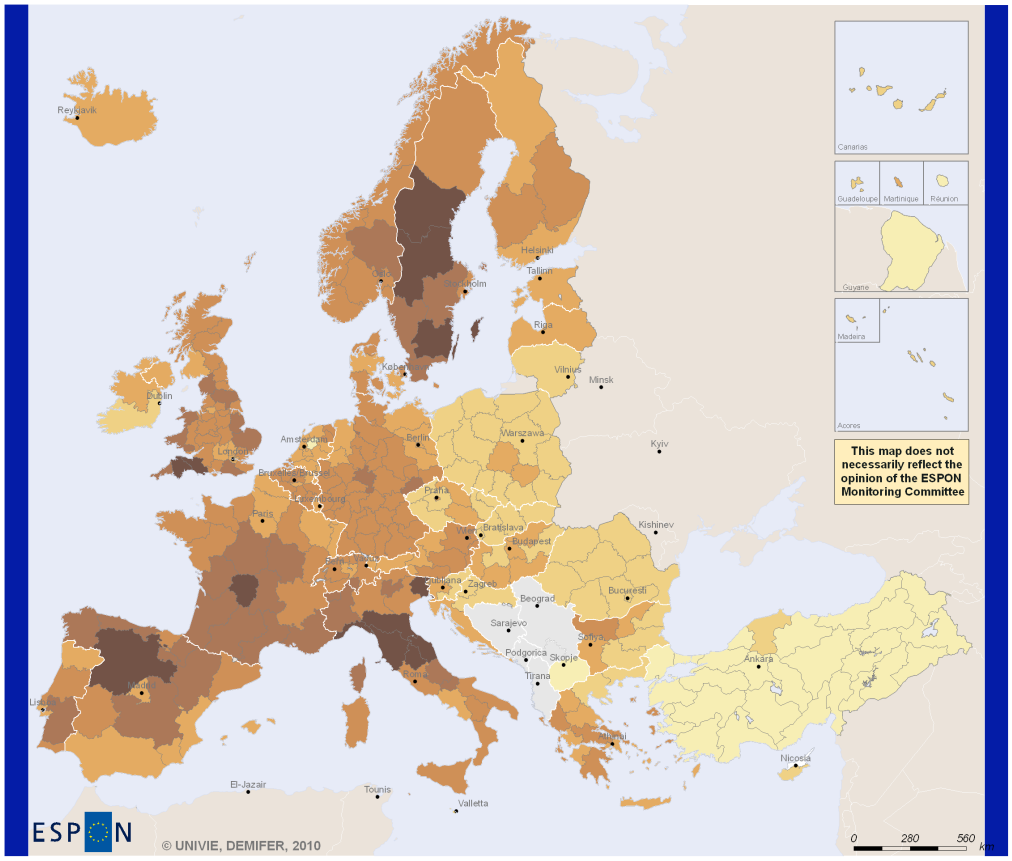
(X) = number of regions per category
Data for TR 2007

Sex Ratio at Age 20-29 years,
Total number of men per 100 women

- 90.0 – 100.0 (50)
- 100.0 – 105.0 (156)
- 105.0 – 110.0 (77)
- 110.0 – 115.0 (19)
- 115.0 – 120.0 (10)
- 120.0 – 178.0 (6)
- no data

Map A3.09

Population Aged 80+ in 2005



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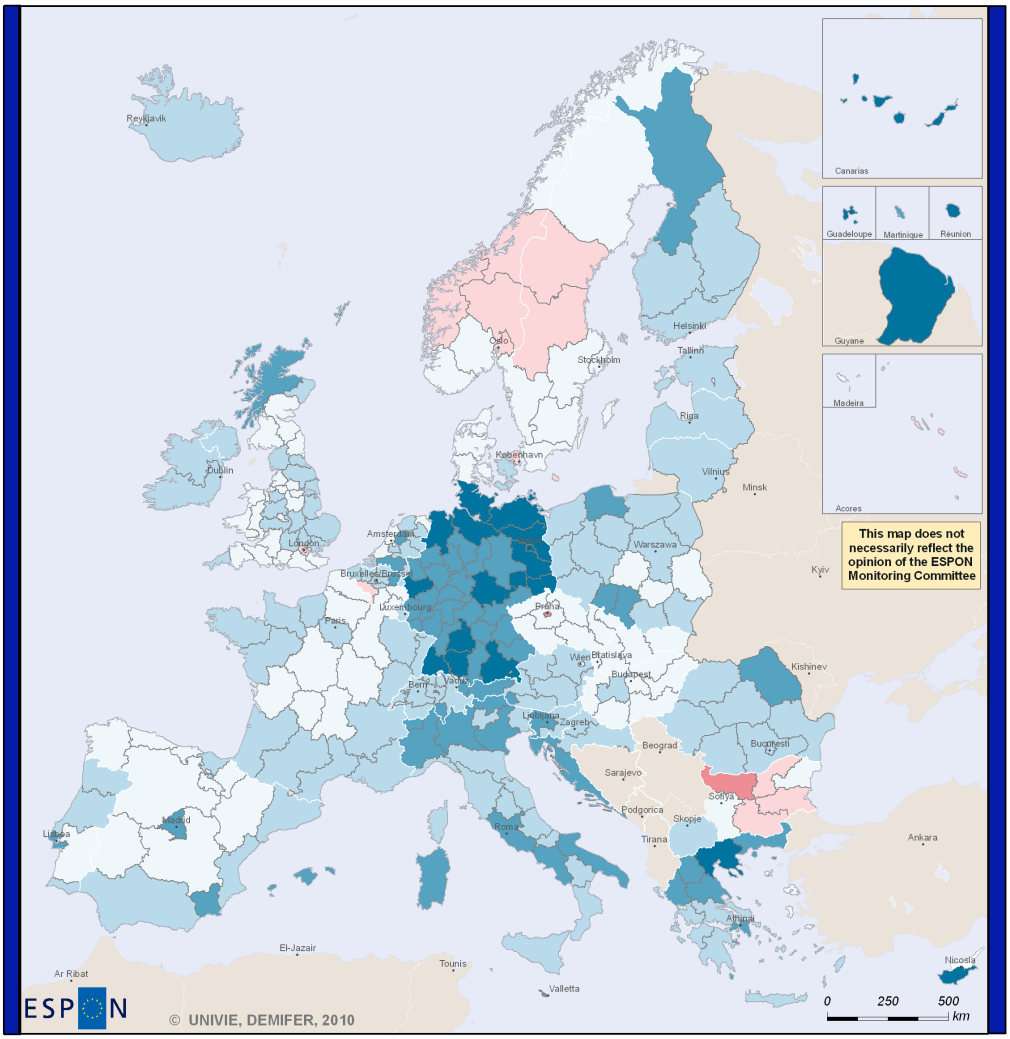
(X) = number of regions per category
Data for TR 2007

Share of Population Aged 80 Years and Over, in % in 2005

0.6 - 2.0	(29)
2.0 - 3.0	(54)
3.0 - 4.0	(71)
4.0 - 5.0	(113)
5.0 - 6.0	(38)
6.0 - 7.5	(13)
no data	

Map A3.10

Change of Population Aged 65+, 2001-2005



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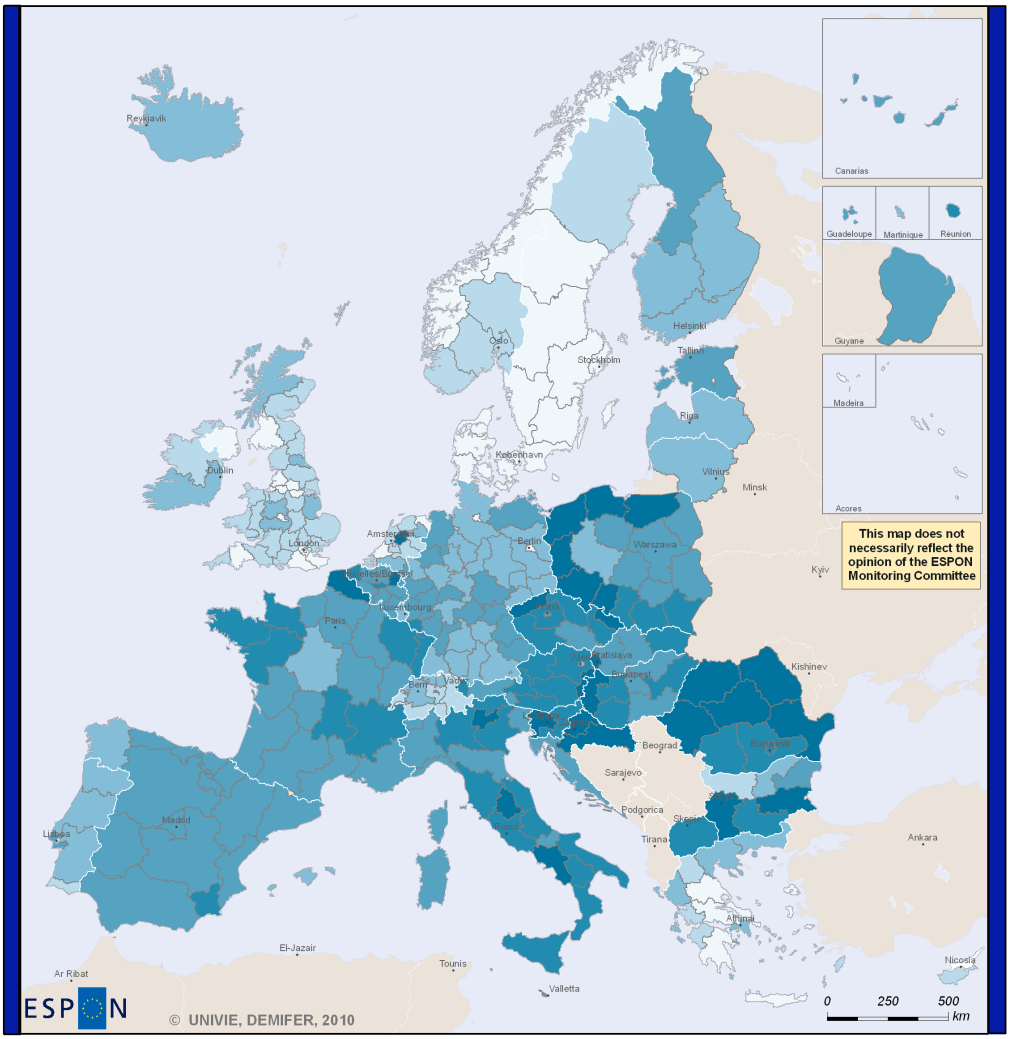
Change of Population Aged 65+, in %
Annual Average Change 2001-2005

(X) = number of regions per category

-2.3 – -1.0	(2)
-1.0 – 0.0	(16)
0.0 – 1.0	(79)
1.0 – 2.0	(115)
2.0 – 3.0	(59)
3.0 – 4.8	(21)
no data	

Map A3.11

Change of Population Aged 80+, 2001-2005



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Source: ESPON 2013 Database 2010
Origin of data: Eurostat, NSIs 2008-10
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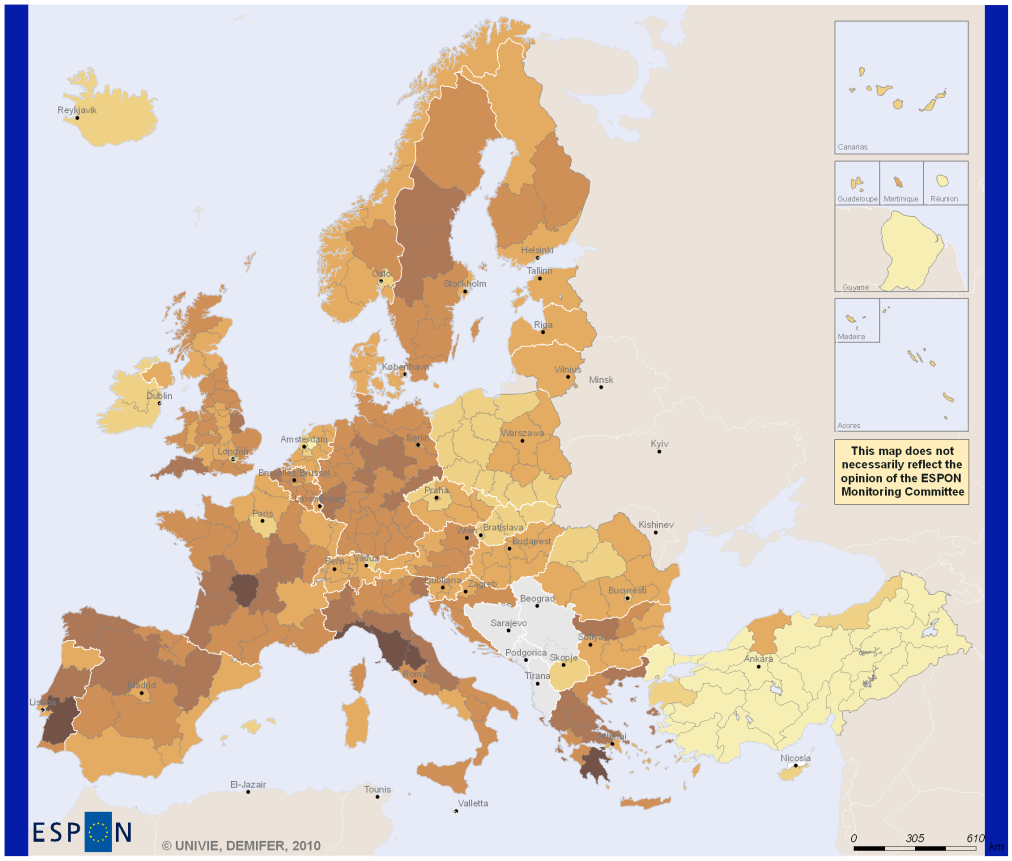
Change of Population Aged 80+, in %
Annual Average Change 2001-2005

(X) = number of regions per category

0.0 – 2.0	(41)
2.0 – 3.0	(43)
3.0 – 4.0	(55)
4.0 – 5.0	(78)
5.0 – 6.0	(48)
6.0 – 9.1	(27)
no data	

Map A3.12

Old Age Dependency Ratio in 2005



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Source: ESPON 2013 Database 2010
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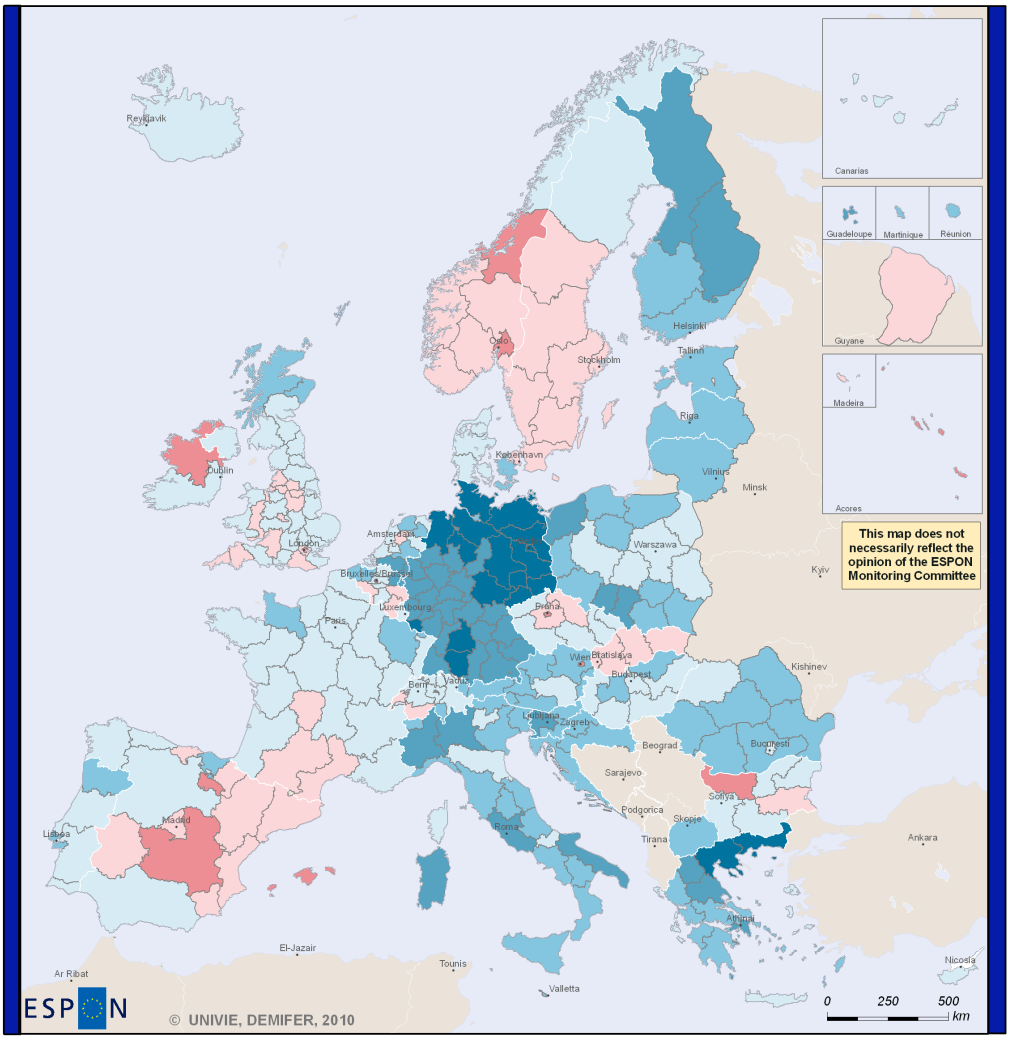
(X) = number of regions per category
Data for TR 2007

Old Age Dependency Ratio,
Persons Aged 65+ as a share of persons aged 15-64

5.0 – 15.0	(27)
15.0 – 20.0	(44)
20.0 – 25.0	(102)
25.0 – 30.0	(99)
30.0 – 35.0	(40)
35.0 – 43.0	(6)
no data	

Map A3.13

Change in Old Age Dependency Ratio, 2001-2005



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Regional level: NUTS 2
Source: ESPON 2013 Database 2010
Origin of data: Eurostat, NSIs 2008-10
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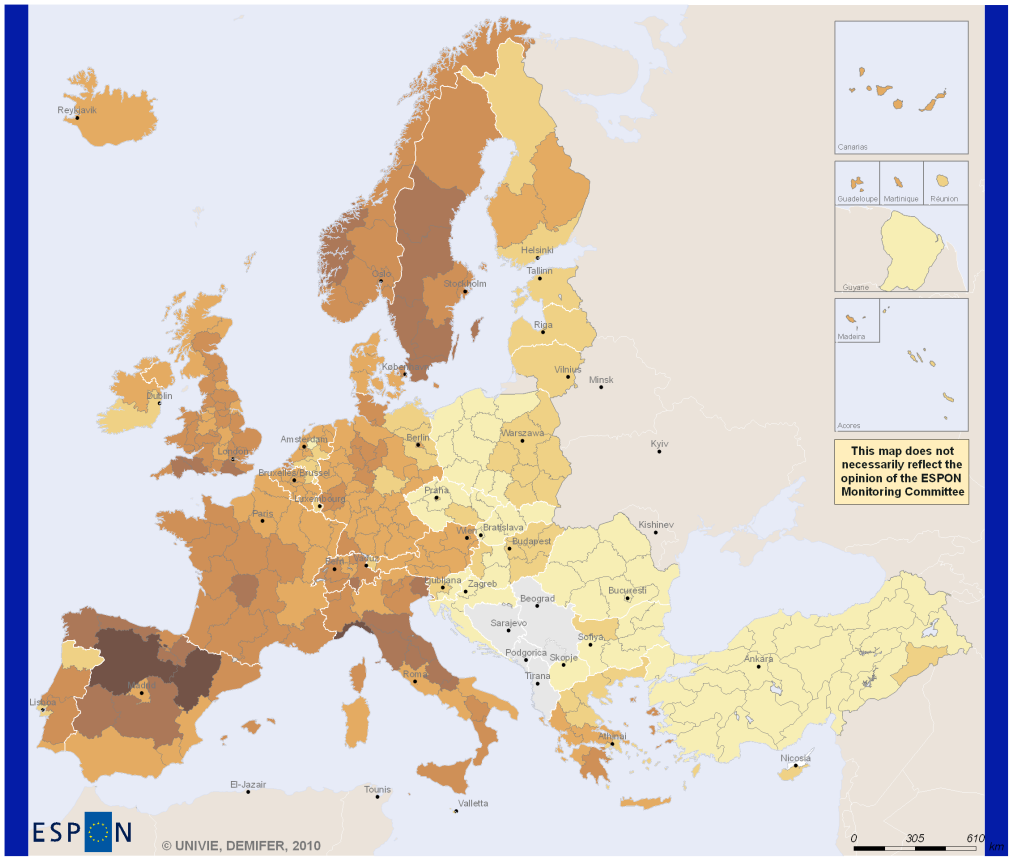
Change of Old Age Dependency Ratio,
Annual Average Change in %, in 2001-2005

(X) = number of regions per category

-2.0 – -1.0	(13)
-1.0 – 0.0	(50)
0.0 – 1.0	(99)
1.0 – 2.0	(71)
2.0 – 3.0	(41)
3.0 – 5.6	(18)
no data	

Map A3.14

Parent Support Ratio in 2005



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Regional level: NUTS 2
Source: ESPON 2013 Database 2010
Origin of data: Eurostat, NSIs 2008-10
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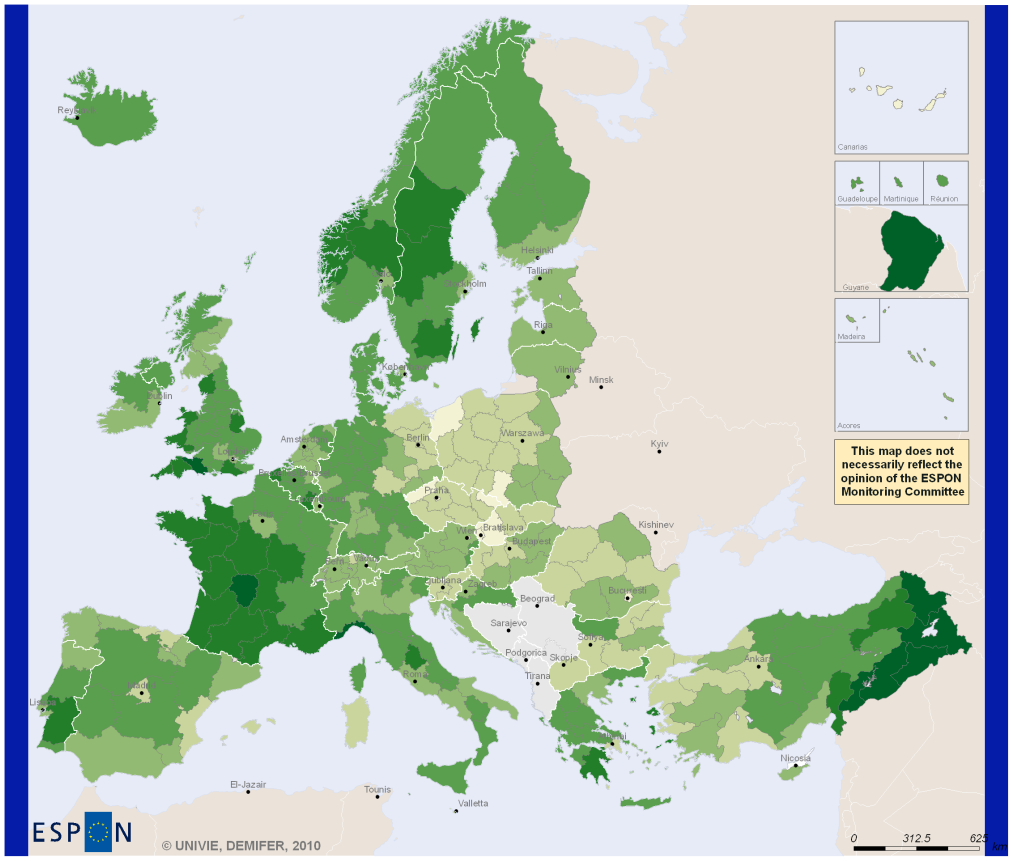
(X) = number of regions per category
Data for TR 2007

Parent Support Ratio,
Persons Aged 85+ as a share of persons aged 50-64

2.3 – 5.0	(66)
5.0 – 7.5	(47)
7.5 – 10.0	(101)
10.0 – 12.5	(76)
12.5 – 15.0	(25)
15.0 – 17.4	(3)
no data	

Map A3.15

Total Dependency Ratio in 2005



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Regional level: NUTS 2
Source: ESPON 2013 Database 2010
Origin of data: Eurostat, NSIs 2008-10
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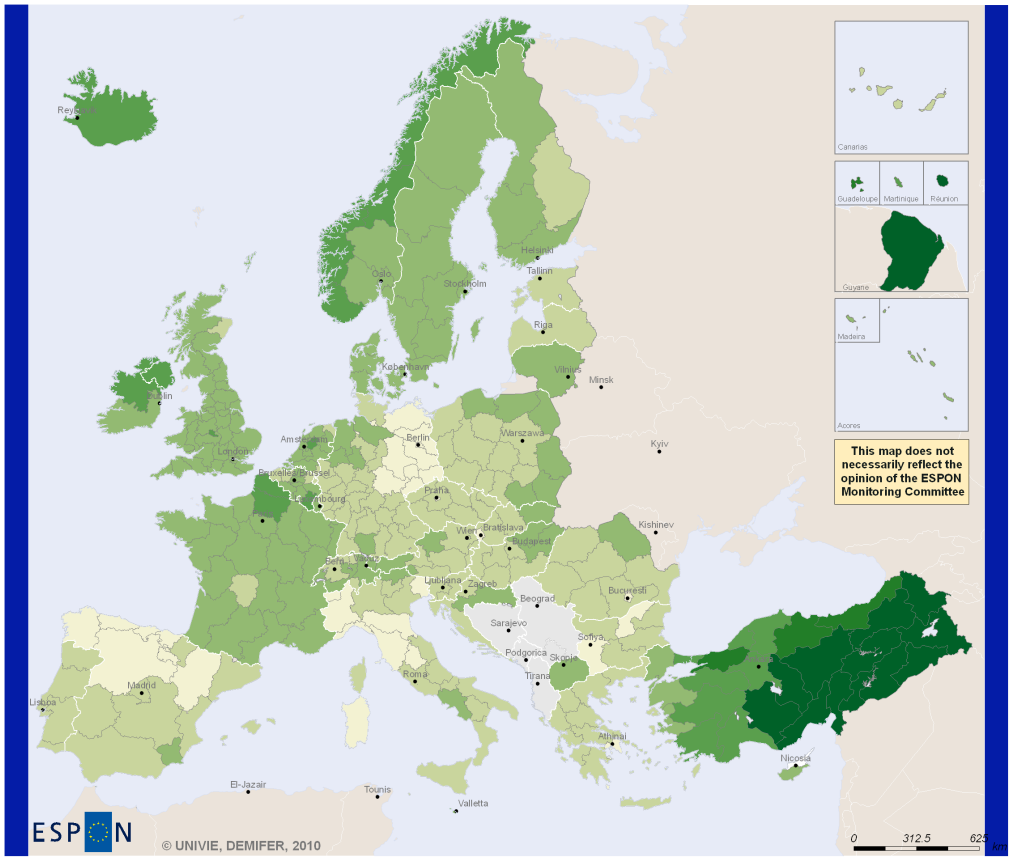
(X) = number of regions per category
Data for TR 2007

Total Dependency Ratio, Persons Aged 00-14 and Aged 65+ as a share of persons aged 15-64

- 34.0 – 40.0 (10)
- 40.0 – 45.0 (57)
- 45.0 – 50.0 (87)
- 50.0 – 55.0 (125)
- 55.0 – 60.0 (30)
- 60.0 – 87.0 (9)
- no data

Map A3.16

Youth Dependency Ratio in 2005



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Regional level: NUTS 2
Source: ESPON 2013 Database 2010
Origin of data: Eurostat, NSIs 2008-10
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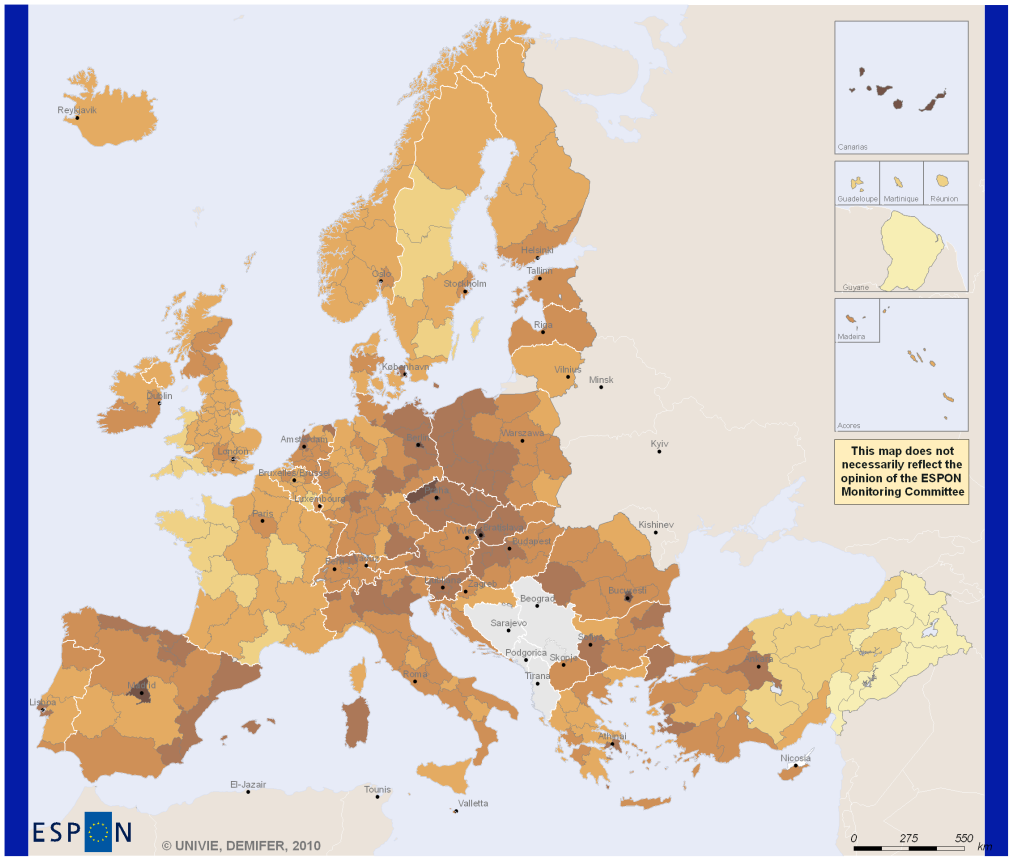
(X) = number of regions per category
Data for TR 2007

Youth Dependency Ratio,
Persons Aged 00-14 as a share of persons aged 15-64

- 14.0 – 20.0 (32)
- 20.0 – 25.0 (121)
- 25.0 – 30.0 (125)
- 30.0 – 35.0 (22)
- 35.0 – 40.0 (4)
- 40.0 – 79.0 (14)
- no data

Map A3.17

Population Aged 20-64 in 2005



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Regional level: NUTS 2
Source: ESPON 2013 Database 2010
Origin of data: Eurostat, NSIs 2008-10
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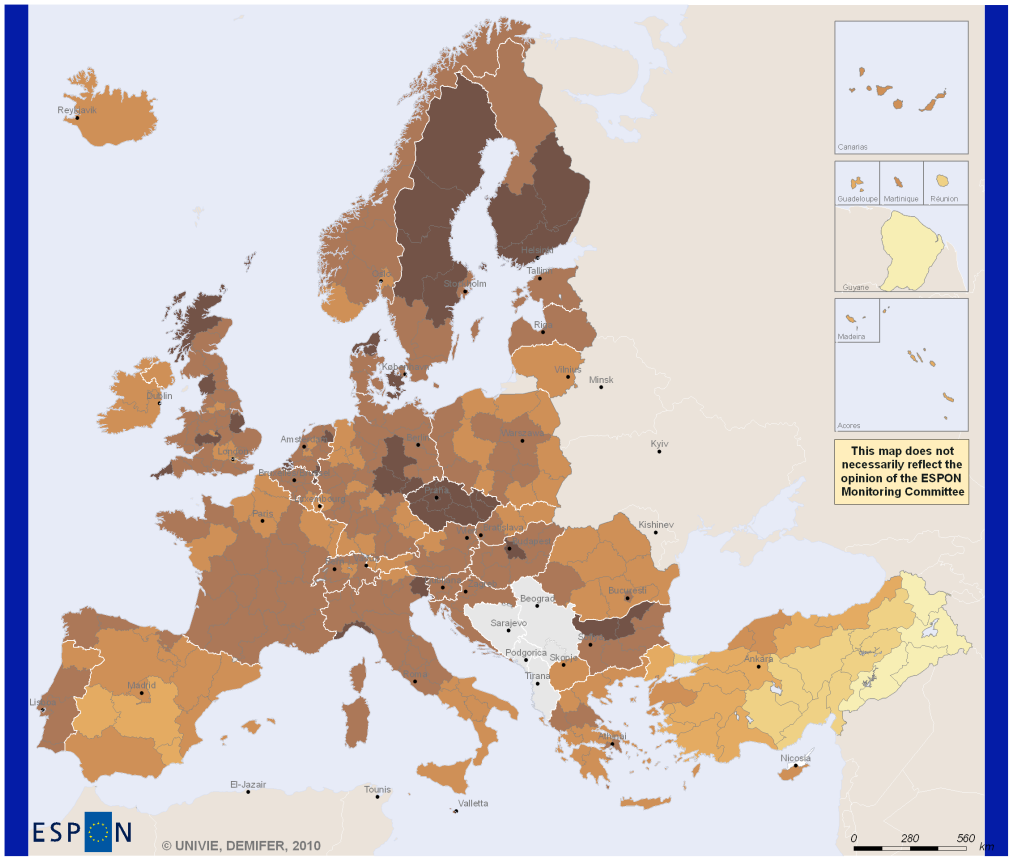
(X) = number of regions per category
Data for TR 2007

Share of Population Aged 20-64 Years, in % in 2005

42.6 - 55.0	(8)
55.0 - 57.5	(26)
57.5 - 60.0	(106)
60.0 - 62.5	(111)
62.5 - 65.0	(58)
65.0 - 67.6	(9)
no data	

Map A3.18

Population Aged 50-64 in 2005



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Regional level: NUTS 2
Source: ESPON 2013 Database 2010
Origin of data: Eurostat, NSIs 2008-10
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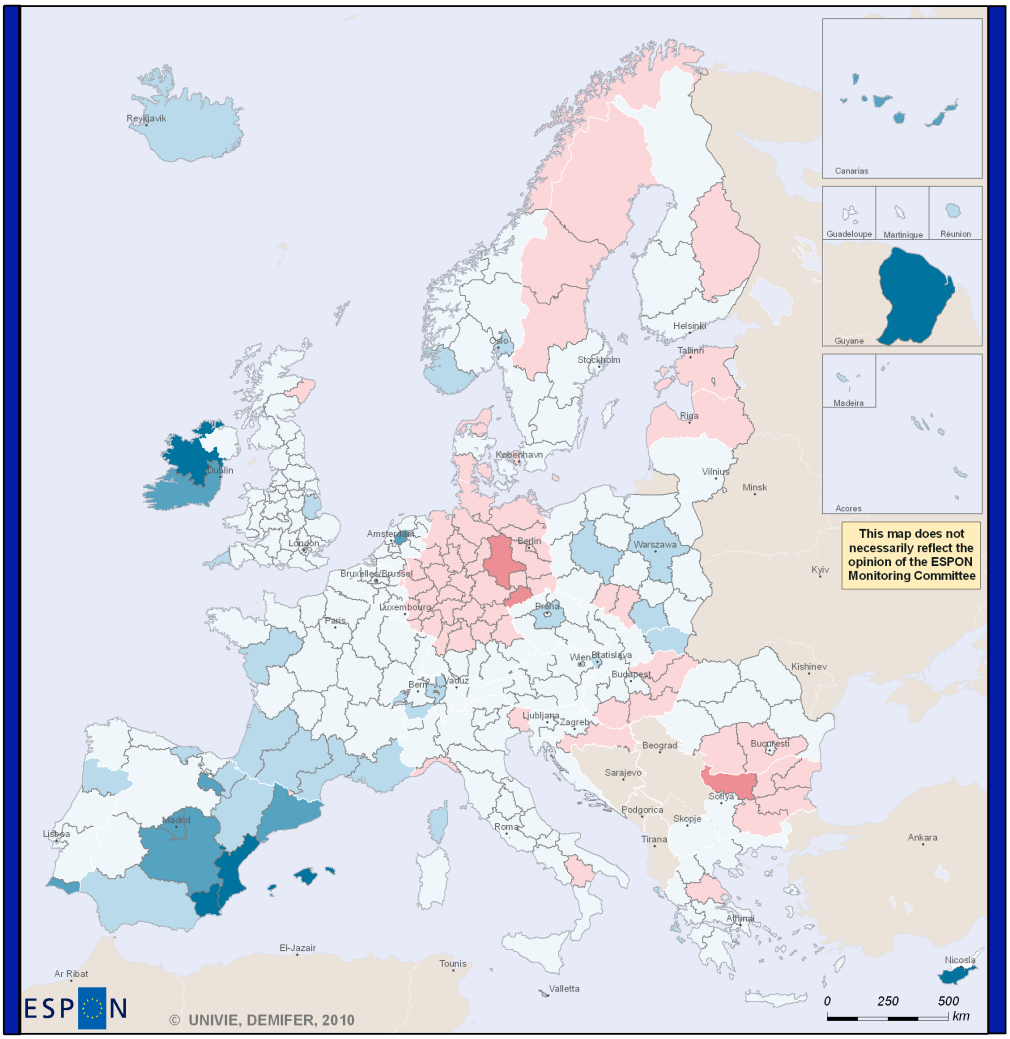
(X) = number of regions per category
Data for TR 2007

Share of Population Aged 50-64 Years, in % in 2005

5.9 - 10.0	(6)
10.0 - 12.5	(10)
12.5 - 15.0	(19)
15.0 - 17.5	(90)
17.5 - 20.0	(158)
20.0 - 22.6	(35)
no data	

Map A3.19

Change of Population Aged 20-64, 2001-2005



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Regional level: NUTS 2
Source: ESPON 2013 Database 2010
Origin of data: Eurostat, NSIs 2008-10
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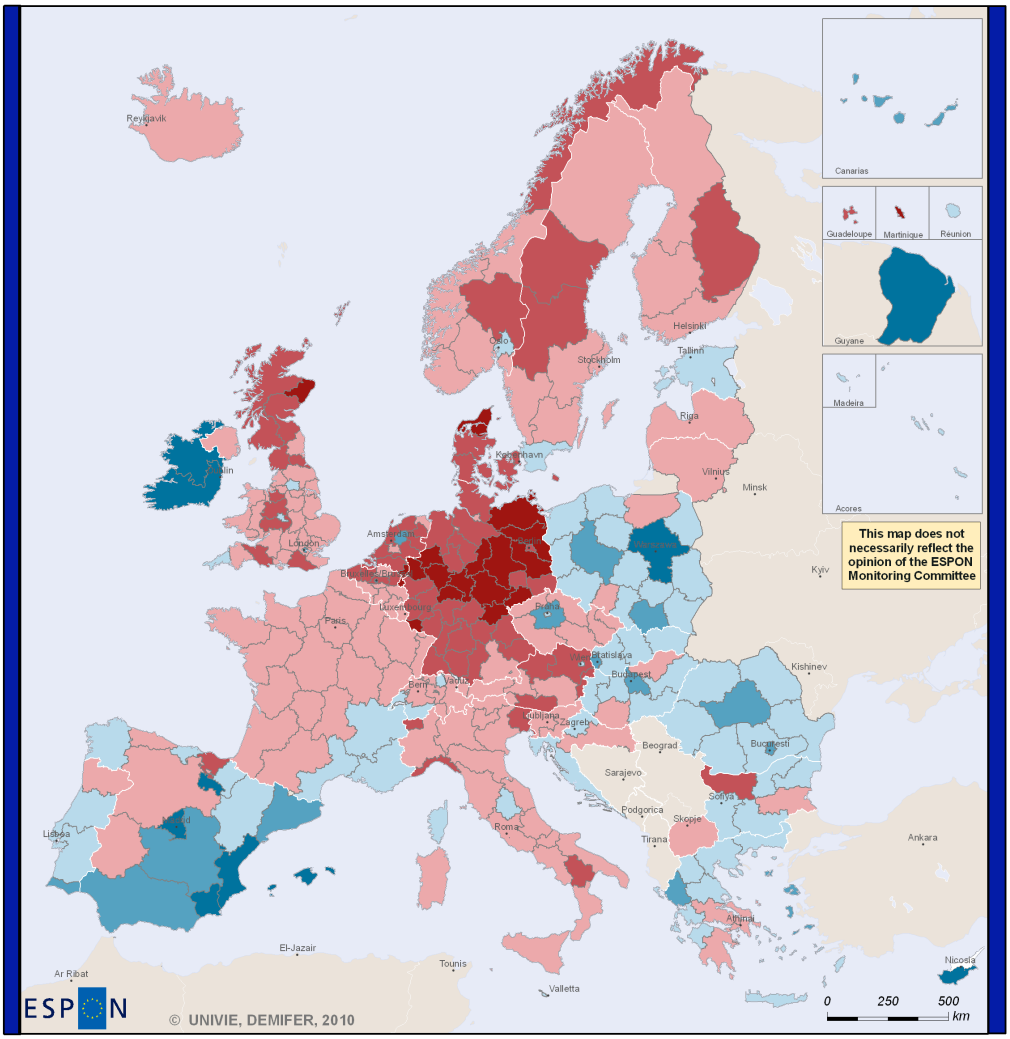
Change of Population Aged 20-64, in %
Annual Average Change 2001-2005

(X) = number of regions per category

-1.5 – -1.0	(3)
-1.0 – 0.0	(61)
0.0 – 1.0	(180)
1.0 – 2.0	(34)
2.0 – 3.0	(8)
3.0 – 3.7	(6)
no data	

Map A3.20

Change of Population Aged 20-39, 2001-2005



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Regional level: NUTS 2
Source: ESPON 2013 Database 2010
Origin of data: Eurostat, NSIs 2008-10
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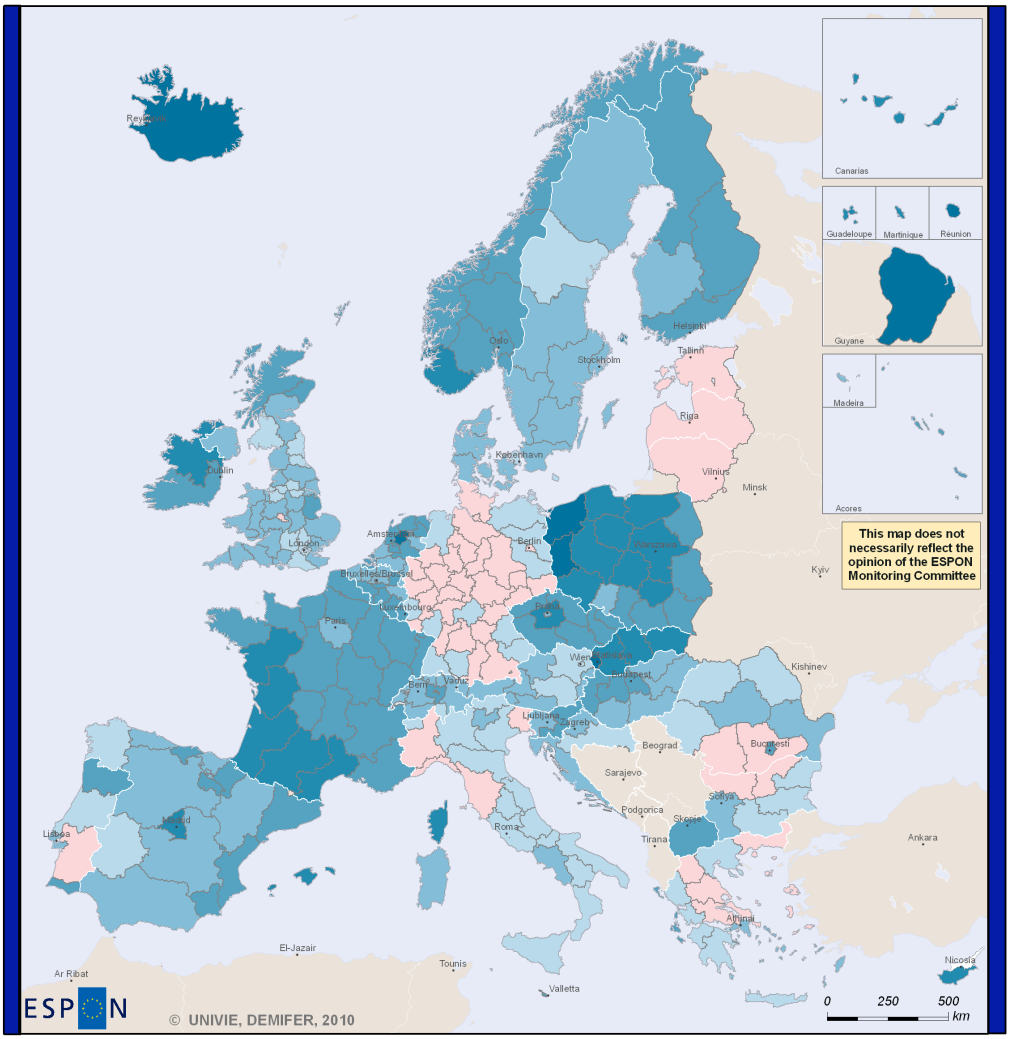
Change of Population Aged 20-39, in %
Annual Average Change 2001-2005

(X) = number of regions per category

-3.2 – -2.0	(18)
-2.0 – -1.0	(65)
-1.0 – 0.0	(117)
0.0 – 1.0	(65)
1.0 – 2.0	(17)
2.0 – 4.1	(10)
no data	

Map A3.21

Change of Population Aged 50-64, 2001-2005



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Regional level: NUTS 2
Source: ESPON 2013 Database 2010
Origin of data: Eurostat, NSIs 2008-10
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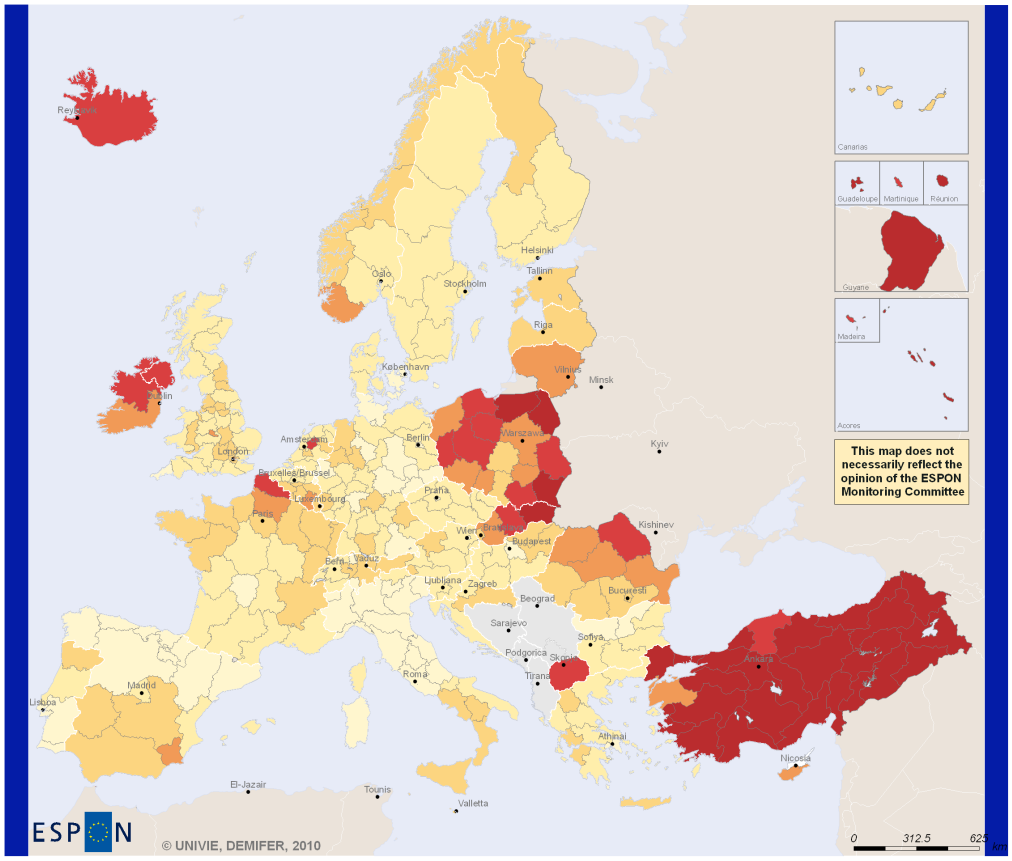
Change of Population Aged 50-64, in %
Annual Average Change 2001-2005

(X) = number of regions per category

	-1.8 – 0.0	(45)
	0.0 – 1.0	(61)
	1.0 – 2.0	(80)
	2.0 – 3.0	(71)
	3.0 – 4.0	(28)
	4.0 – 6.1	(7)
	no data	

Map A3.22

Labour Force Replacement Ratio in 2005



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Regional level: NUTS 2
Source: ESPON 2013 Database 2010
Origin of data: Eurostat, NSIs 2008-10
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(X) = number of regions per category
Data for TR 2007

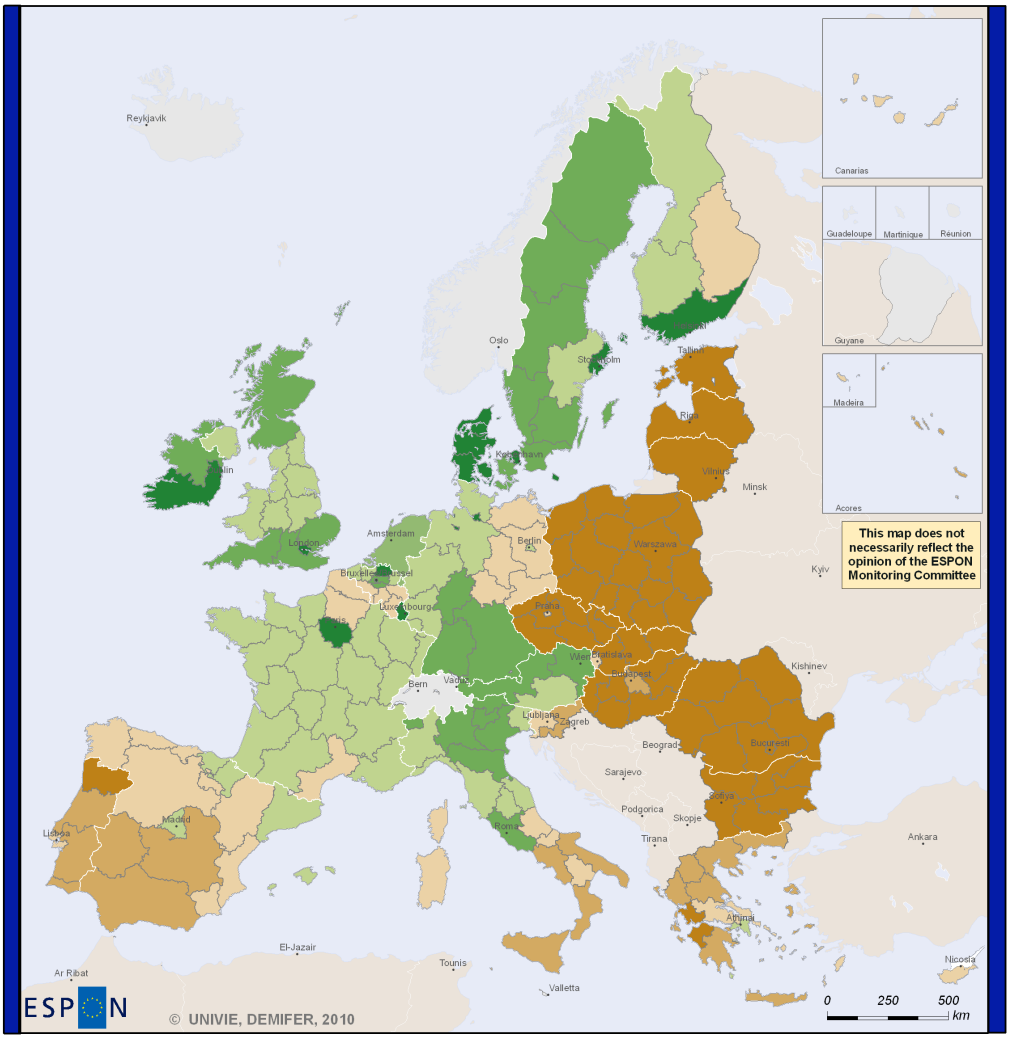
Labour Force Replacement Ratio,
Persons Aged 10-19 as a share of persons aged 55-64

- 53.0 – 90.0 (52)
- 90.0 – 110.0 (124)
- 110.0 – 130.0 (71)
- 130.0 – 150.0 (20)
- 150.0 – 170.0 (18)
- 170.0 – 720.0 (33)
- no data

Annex 4 – Mapping Socio-Economic Indicators

Map A4.01

GDP in € per inhabitant in 2005



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Regional level: NUTS 2; NUTS1 for AT, DE, NL, UK
Source: ESPON 2013 Database 2010
Origin of data: LFS, Eurostat 2009
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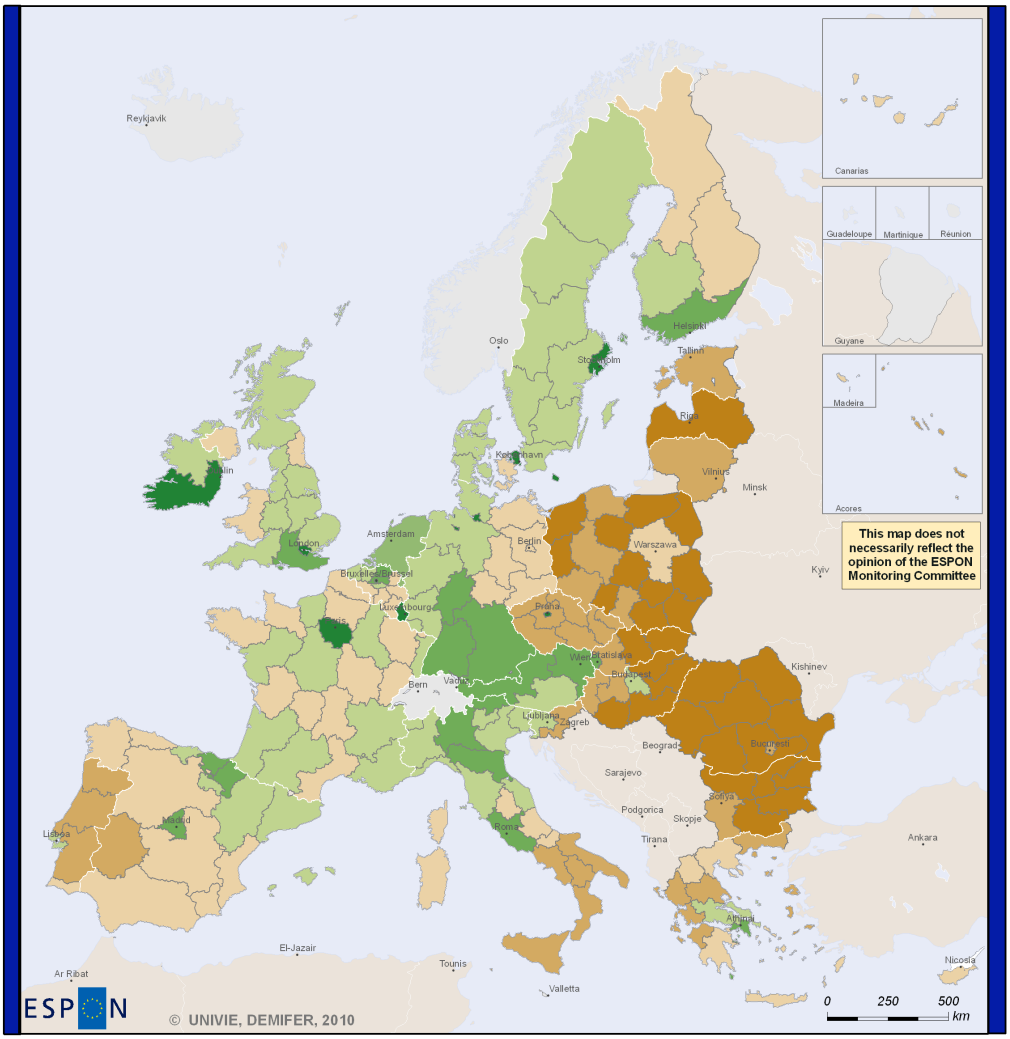
GDP in Euro per inhabitant in 2005
Percentage of EU27 average (EU 27 = 100)

(X) = number of regions per category

9.6 – 50.0	(50)
50.0 – 75.0	(23)
75.0 – 100.0	(37)
100.0 – 125.0	(49)
125.0 – 150.0	(26)
150.0 – 288.2	(16)
not included to LFS	
no data	

Map A4.02

GDP in PPP per inhabitant in 2005



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Regional level: NUTS 2; NUTS 1 for AT, DE, NL, UK
Source: ESPON 2013 Database 2010
Origin of data: LFS, Eurostat 2009
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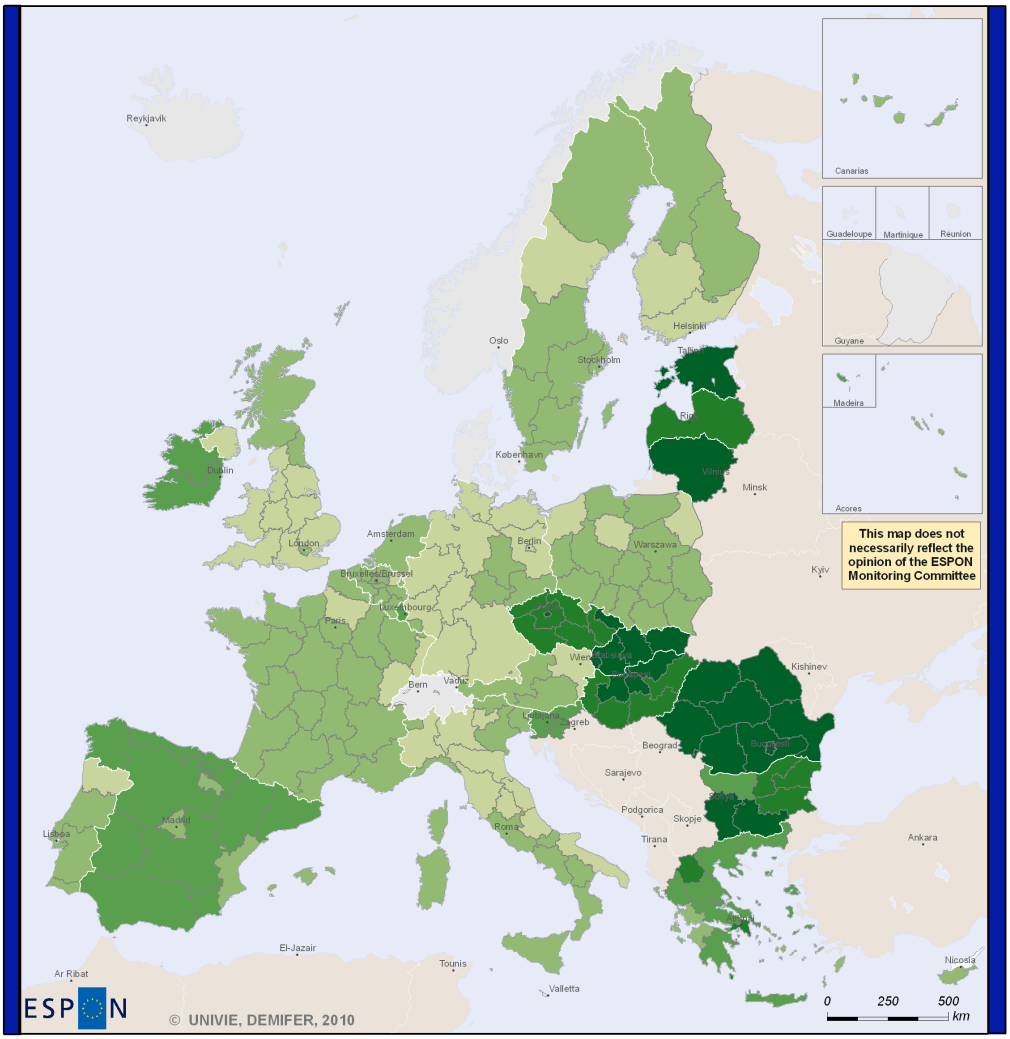
GDP in Purchasing Power Parity in 2005
Percentage of EU27 average (EU 27 = 100)

(X) = number of regions per category

- 24.2 – 50.0 (30)
- 50.0 – 75.0 (35)
- 75.0 – 100.0 (52)
- 100.0 – 125.0 (54)
- 125.0 – 150.0 (19)
- 150.0 – 264.4 (11)
- not included to LFS
- no data

Map A4.03

GDP Growth – € per Inhabitant



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Regional level: NUTS 2; NUTS 1 for AT, DE, NL, UK
Source: ESPON 2013 Database 2010
Origin of data: LFS, Eurostat 2009
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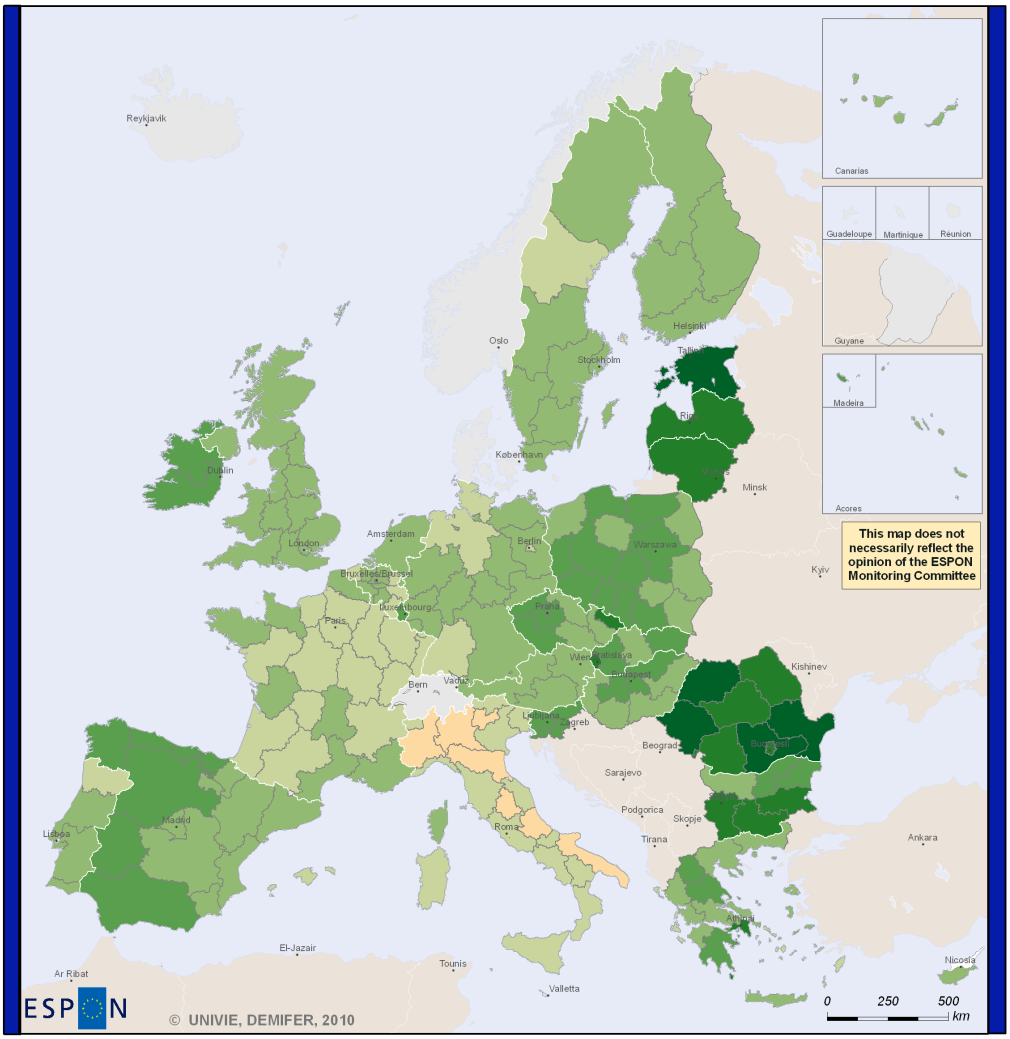
GDP Growth - EURO per Inhabitant
Annual Average Change 2001-2005, in %

(X) = number of regions per category

-0.4 – 0.0	(1)
0.0 – 2.5	(42)
2.5 – 5.0	(87)
5.0 – 7.5	(27)
7.5 – 10.0	(18)
10.0 – 18.0	(21)
not included to LFS	
no data	

Map A4.04

GDP Growth – PPP per Inhabitant



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Regional level: NUTS 2; NUTS 1 for AT, DE, NL, UK
Source: ESPON 2013 Database 2010
Origin of data: LFS, Eurostat 2009
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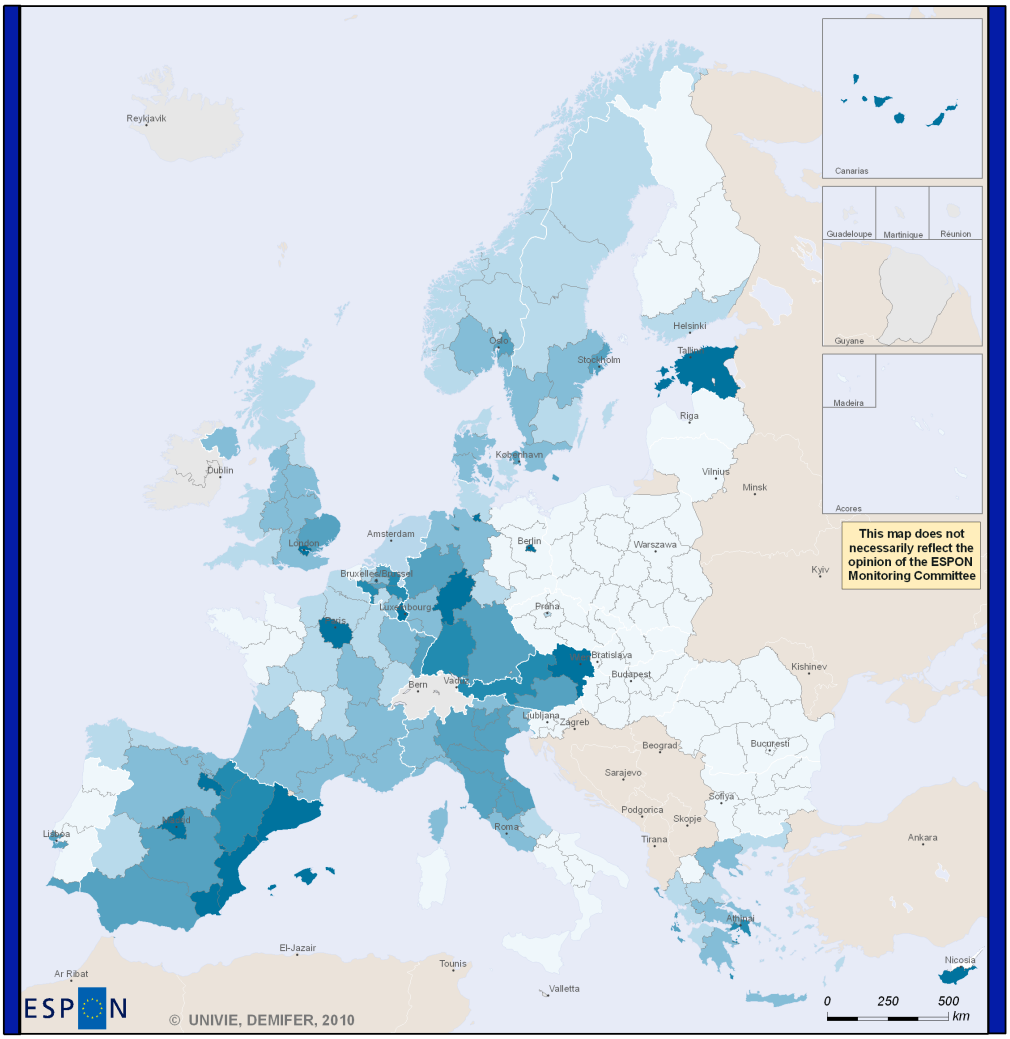
GDP Growth - Purchasing Power Parity per Inhabitant
Annual Average Change 2001-2005, in %

(X) = number of regions per category

-1.2 – 0.0	(8)
0.0 – 2.5	(42)
2.5 – 5.0	(90)
5.0 – 7.5	(39)
7.5 – 10.0	(12)
10.0 – 11.6	(5)
not included to LFS	
no data	

Map A4.05

Foreign Population in 2007



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Regional level: NUTS 2; NUTS 1 for AT, DE, NL, UK
Source: ESPON 2013 Database 2010
Origin of data: EU-Labour Force Survey 2007
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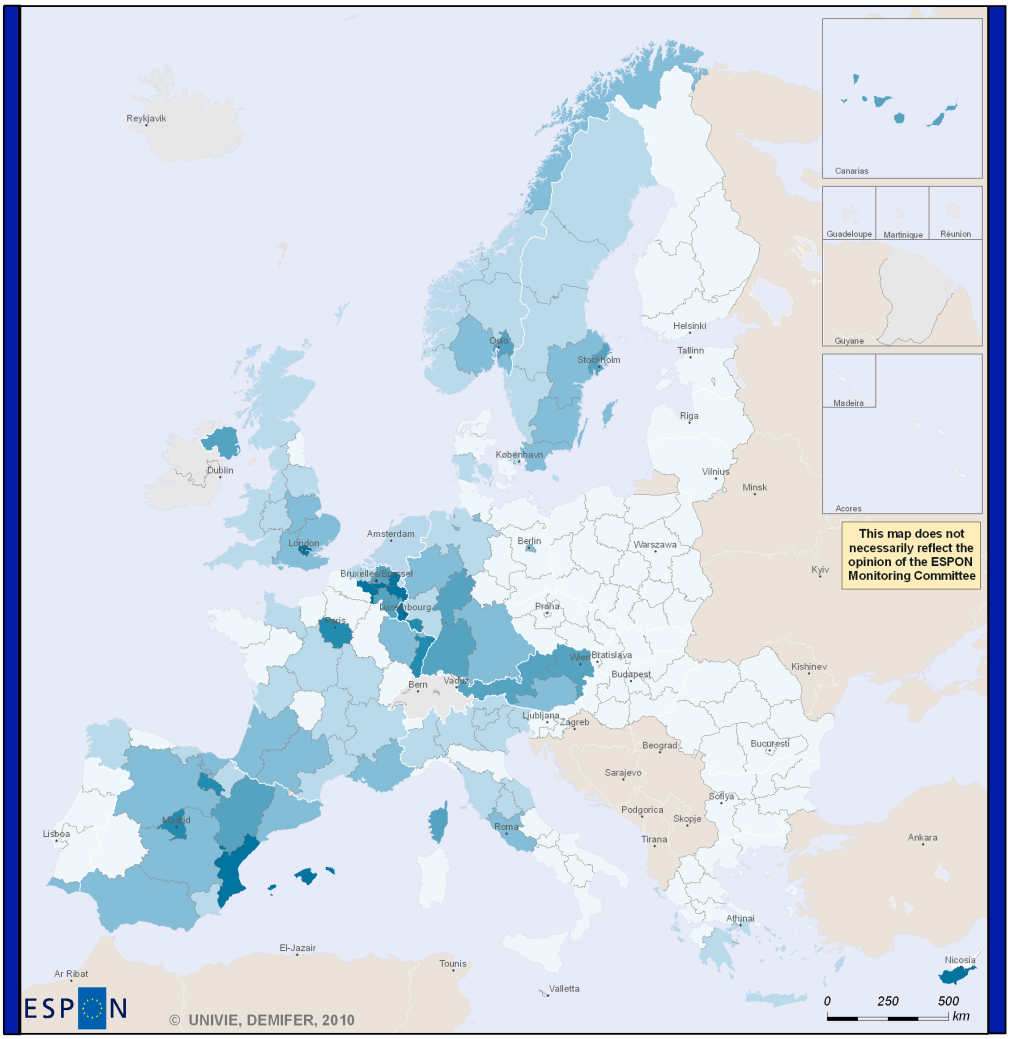
Share of Population with a Foreign Citizenship, in % in 2007

(X) = number of regions per category

0.0 – 2.0	(74)
2.0 – 4.0	(40)
4.0 – 6.0	(38)
6.0 – 8.0	(23)
8.0 – 10.0	(10)
10.0 – 41.6	(17)
Not included to LFS / data not available	
no data	

Map A4.06

Foreign Population from EU27 Countries in 2007



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Regional level: NUTS 2; NUTS 1 for AT, DE, NL, UK
Source: ESPON 2013 Database 2010
Origin of data: EU-Labour Force Survey 2007
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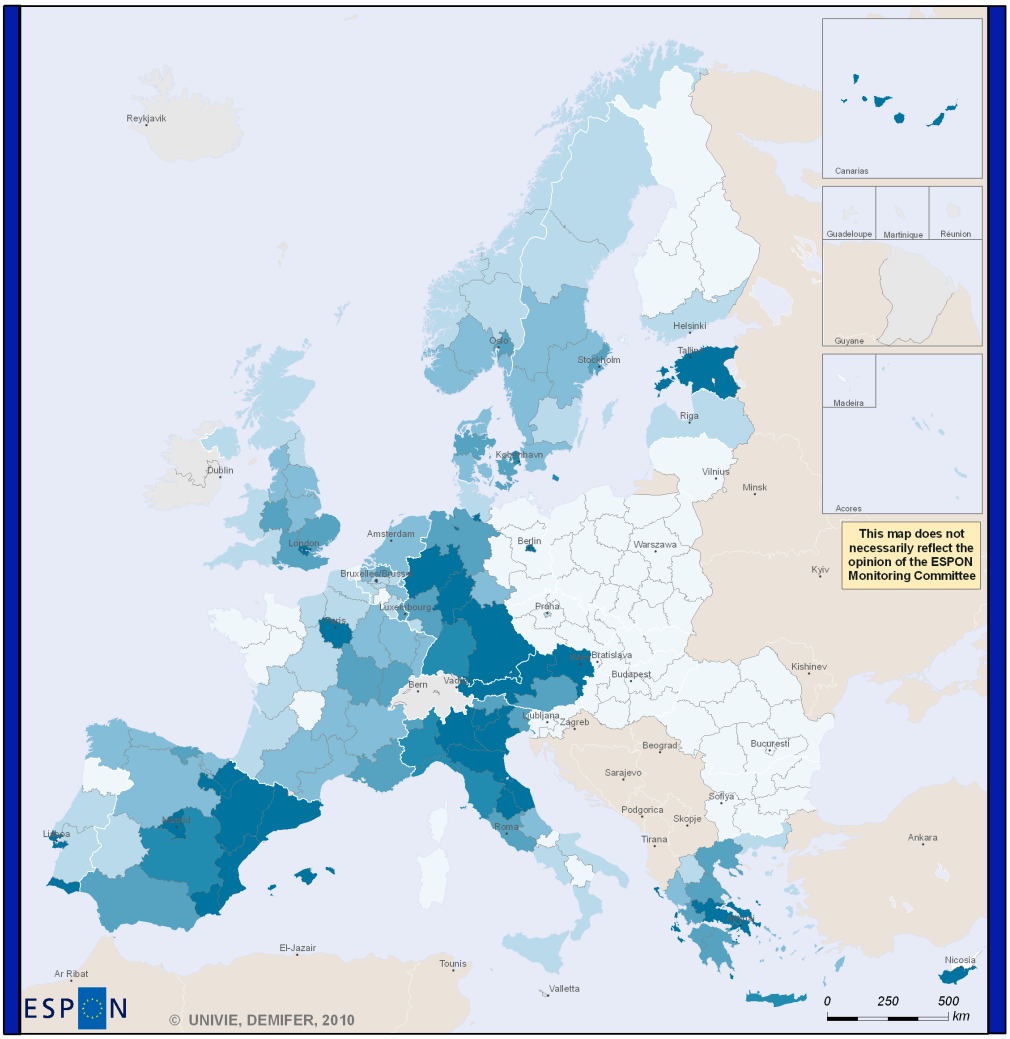
Share of Population with a Foreign EU27 Citizenship in % in 2007

(X) = number of regions per category

- 0.0 – 1.0 (105)
- 1.0 – 2.0 (47)
- 2.0 – 3.0 (25)
- 3.0 – 4.0 (14)
- 4.0 – 5.0 (5)
- 5.0 – 38.3 (10)
- Not included to LFS / data not available
- no data

Map A4.07

Foreign Population from Non-EU Countries in 2007



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Regional level: NUTS 2; NUTS1 for AT, DE, NL, UK
Source: ESPON 2013 Database 2010
Origin of data: EU-Labour Force Survey 2007
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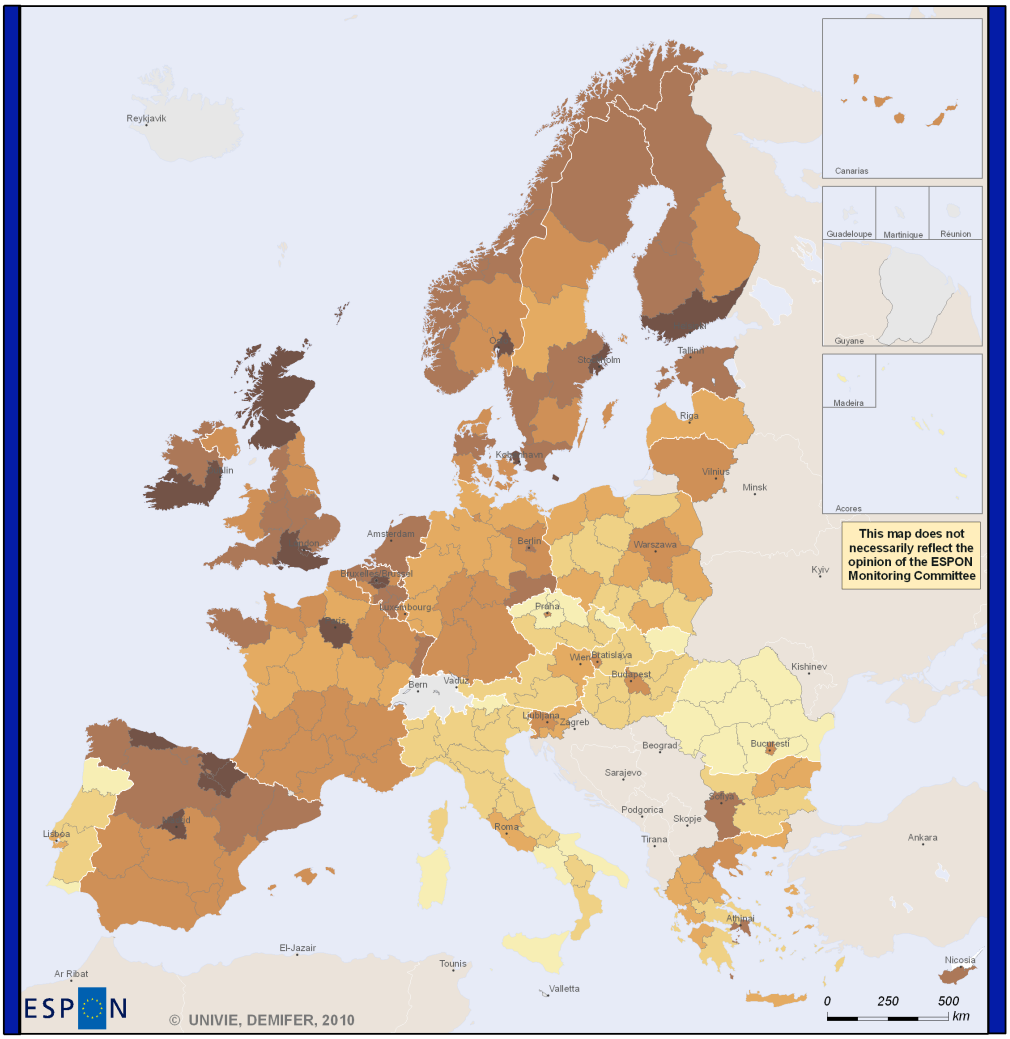
Share of Population with a Foreign Non - EU27 Citizenship in % in 2007

(X) = number of regions per category

- 0.0 – 1.0 (71)
- 1.0 – 2.0 (39)
- 2.0 – 3.0 (29)
- 3.0 – 4.0 (25)
- 4.0 – 5.0 (7)
- 5.0 – 15.8 (35)
- Not included to LFS / data not available
- no data

Map A4.08

Tertiary Educated in 2007



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Source: ESPON 2013 Database 2010
Origin of data: EU-Labour Force Survey 2007
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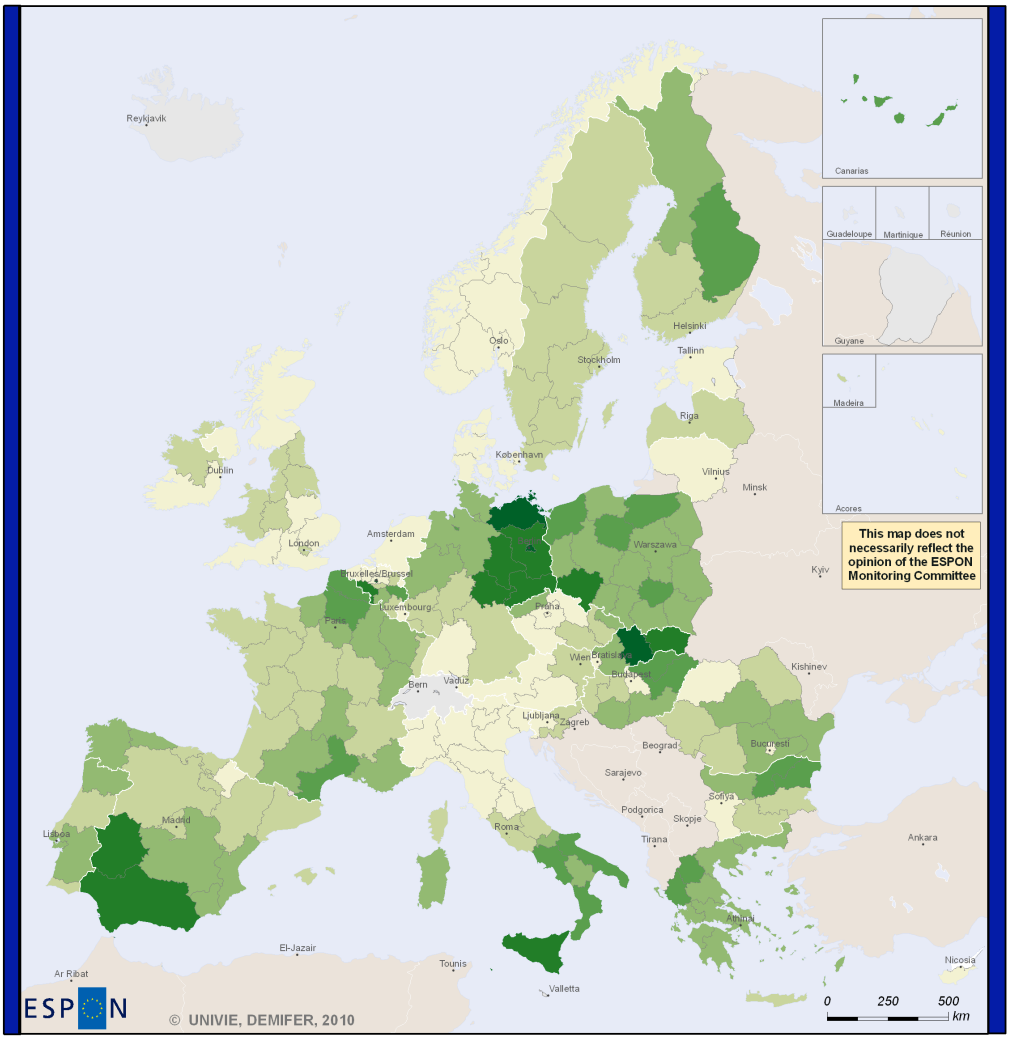
Tertiary Educated Persons (ISCED 5-6)
as a share of population aged 15-64 years, in % in 2007

(X) = number of regions per category

- 6.0 – 10.0 (21)
- 10.0 – 15.0 (46)
- 15.0 – 20.0 (38)
- 20.0 – 25.0 (49)
- 25.0 – 30.0 (37)
- 30.0 – 41.1 (17)
- Not included to LFS / data not available
- no data

Map A4.09

Unemployment Rate in 2007



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Regional level: NUTS 2; NUTS1 for AT, DE, NL, UK
Source: ESPON 2013 Database 2010
Origin of data: EU-Labour Force Survey 2007
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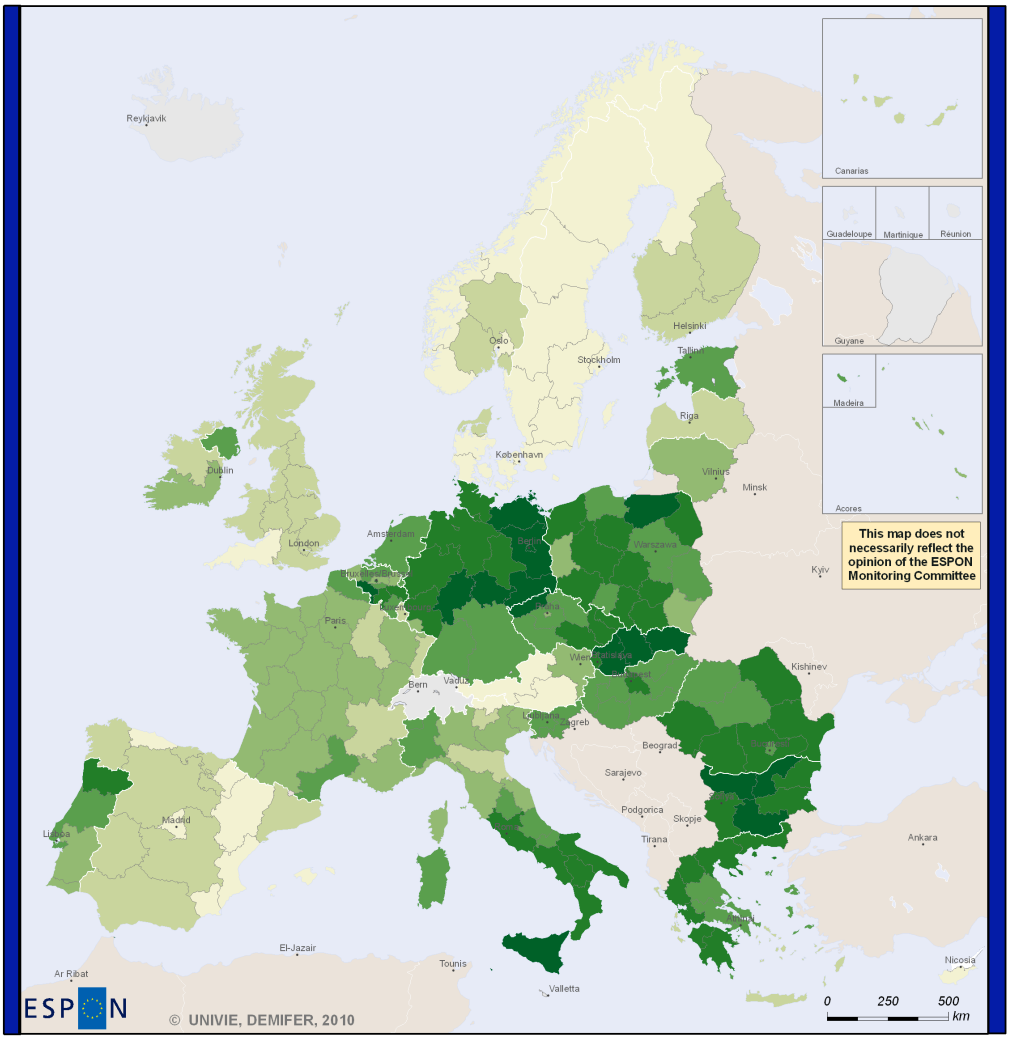
Unemployed Persons as a share of Labour Force (15-64 Years), in % in 2007

(X) = number of regions per category

- 2.1 – 5.0 (55)
- 5.0 – 7.5 (61)
- 7.5 – 10.0 (55)
- 10.0 – 12.5 (20)
- 12.5 – 15.0 (10)
- 15.0 – 19.4 (6)
- Not included to LFS / data not available
- no data

Map A4.10

Long-Term Unemployment in 2007



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Regional level: NUTS 2; NUTS 1 for AT, DE, NL, UK
Source: ESPON 2013 Database 2010
Origin of data: EU-Labour Force Survey 2007
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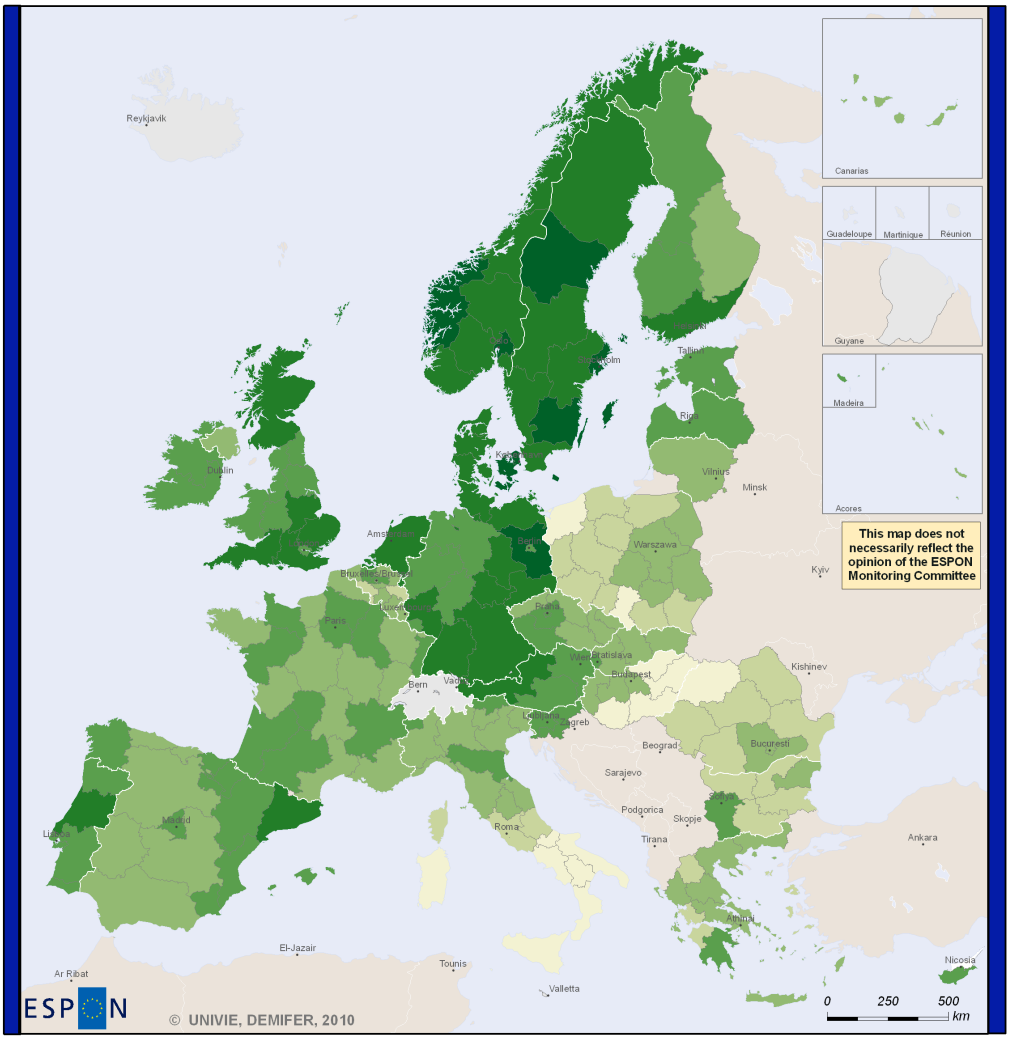
Long-Term Unemployed Persons Aged 15-64 Years as a % Share of All Unemployed, in 2007

(X) = number of regions per category

- 8.3 – 20.0 (28)
- 20.0 – 30.0 (39)
- 30.0 – 40.0 (32)
- 40.0 – 50.0 (38)
- 50.0 – 60.0 (51)
- 60.0 – 79.5 (19)
- Not included to LFS / data not available
- no data

Map A4.11

Labour Force Participation in 2007



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Regional level: NUTS 2; NUTS 1 for AT, DE, NL, UK
Source: ESPON 2013 Database 2010
Origin of data: EU-Labour Force Survey 2007
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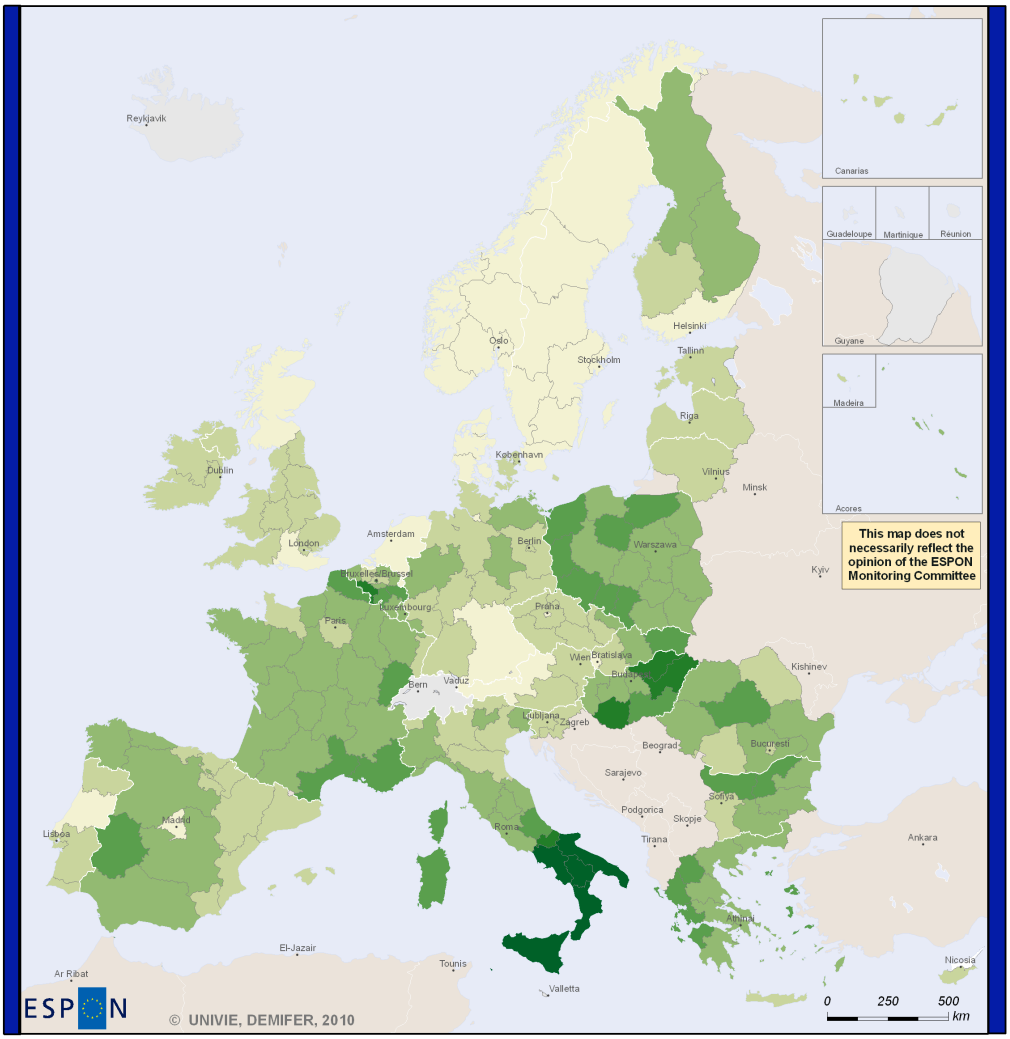
Labour Force Participation Rate,
Persons Aged 15-64 years, in % in 2007

(X) = number of regions per category

- 49.2 – 60.0 (14)
- 60.0 – 65.0 (28)
- 65.0 – 70.0 (67)
- 70.0 – 75.0 (57)
- 75.0 – 80.0 (33)
- 80.0 – 83.4 (9)
- Not included to LFS / data not available
- no data

Map A4.12

"Real" Dependency Ratio in 2007



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Regional level: NUTS 2; NUTS1 for AT, DE, NL, UK
Source: ESPON 2013 Database 2010
Origin of data: EU-Labour Force Survey 2007
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Non-working persons (all ages) per 100 employed persons (aged 15-74 years) in 2007

(X) = number of regions per category

- 35.9 – 100.0 (30)
- 100.0 – 125.0 (70)
- 125.0 – 150.0 (68)
- 150.0 – 175.0 (28)
- 175.0 – 200.0 (6)
- 200.0 – 236.4 (6)
- Not included to LFS / data not available
- no data

Annex 5 – Additional Tables

Table A5.01: Cluster and External Variables, per Type of Region.

Type		Age 20-39 in % (2005)	Age 65+ in % (2005)	Natural Pop. Increase (2001-2005)	Net Migration Rate (2001-2005)	Natural Pop. Balance (2001-2005)	CBR (2001-2005)	CDR (2001-2005)	TFR (2005)	Life Expectancy (2002-2004)	Age 00-04 (2005)	Age 20-64 (2005)	Age 50-64 (2005)	Age 80+ (2005)
Total	Mean	27.82	16.63	0.33	3.16	3.49	10.32	10.02	1.53	78.14	5.17	60.65	18.13	4.07
	Minimum	21.47	3.71	-10.35	-11.25	-21.60	6.70	3.73	0.96	70.81	3.36	51.15	9.18	0.81
	Maximum	36.32	26.51	25.28	26.30	34.35	29.00	18.35	3.83	82.39	13.29	67.34	22.51	7.45
	Std. Deviation	2.65	3.03	3.47	5.49	6.94	2.18	1.77	0.30	2.63	1.00	2.29	1.72	1.09
1	Mean	32.26	14.45	3.61	17.10	20.70	11.71	8.10	1.50	79.76	5.73	62.88	16.00	3.67
	Minimum	29.36	8.70	-0.15	9.96	12.17	9.51	5.34	1.21	78.21	4.64	58.66	13.95	1.99
	Maximum	35.86	19.03	9.78	26.30	29.61	15.24	10.39	1.98	81.60	7.78	65.97	18.78	5.23
	Std. Deviation	1.95	2.97	2.94	4.95	5.29	1.83	1.34	0.24	1.17	0.94	2.06	1.21	1.05
2	Mean	25.68	17.46	0.01	3.43	3.44	10.18	10.17	1.64	79.10	5.21	59.35	18.69	4.58
	Minimum	22.57	15.33	-2.67	-2.11	-2.41	7.94	8.24	1.26	76.54	4.18	56.65	16.80	3.54
	Maximum	28.72	20.30	2.47	9.36	9.10	12.05	13.72	1.98	82.39	6.19	62.73	21.88	6.01
	Std. Deviation	1.26	1.07	1.12	2.26	2.60	1.06	0.91	0.21	1.16	0.46	1.37	1.09	0.52
3	Mean	28.15	14.57	3.72	2.12	5.84	12.18	8.56	1.75	79.36	6.05	60.45	17.56	3.82
	Minimum	24.80	11.13	1.06	-3.51	-0.65	9.47	5.88	1.28	77.01	4.88	57.28	13.94	2.85
	Maximum	36.32	16.96	9.00	9.59	13.26	15.45	14.12	2.21	81.39	7.17	65.18	20.65	4.97
	Std. Deviation	1.81	1.27	1.64	3.13	3.32	1.40	1.22	0.22	1.11	0.61	1.93	1.26	0.50
4	Mean	26.32	19.49	-3.39	-1.20	-4.59	8.34	11.73	1.36	77.28	4.26	60.30	18.90	4.28
	Minimum	21.47	15.89	-10.35	-11.25	-21.60	6.79	9.34	1.14	70.81	3.50	56.82	16.16	2.73
	Maximum	30.04	22.55	-0.59	3.70	0.69	9.87	18.35	1.83	80.83	4.99	62.98	21.90	6.12
	Std. Deviation	1.97	1.67	1.80	3.68	5.07	0.84	1.78	0.16	2.86	0.40	1.63	1.54	0.90
5	Mean	30.43	14.51	-0.78	0.08	-0.71	9.62	10.41	1.29	75.13	4.76	62.72	18.03	2.94
	Minimum	28.33	10.60	-4.76	-7.35	-6.99	7.96	8.09	1.05	71.00	3.98	58.59	14.15	2.01
	Maximum	33.84	18.96	2.89	9.19	7.58	13.01	13.50	1.72	80.76	6.36	67.34	22.51	4.81
	Std. Deviation	1.06	1.97	1.97	3.19	3.54	1.10	1.55	0.13	2.62	0.53	1.96	1.79	0.70
6	Mean	26.87	20.83	-1.74	9.42	7.67	9.14	10.88	1.41	80.18	4.57	60.19	18.84	5.63
	Minimum	21.52	18.51	-6.19	4.14	-0.92	6.70	8.86	0.96	76.99	3.36	55.69	17.12	4.32
	Maximum	31.19	26.51	1.43	16.99	16.73	11.50	13.87	1.81	81.99	5.69	64.06	21.66	7.45
	Std. Deviation	2.38	1.88	1.88	3.04	4.03	1.12	1.20	0.24	1.20	0.56	2.21	1.07	0.79
7	Mean	30.40	9.04	13.56	-1.78	11.78	19.41	5.85	2.51	74.94	9.04	57.14	12.57	2.05
	Minimum	27.02	3.71	8.40	-8.18	0.22	15.40	3.73	1.93	70.91	7.06	51.15	9.18	0.81
	Maximum	32.55	11.81	25.28	9.07	34.35	29.00	7.00	3.83	79.75	13.29	61.12	15.00	2.86
	Std. Deviation	2.18	3.47	6.85	7.15	13.81	5.53	1.37	0.78	3.90	2.52	3.79	2.18	0.84

Type	*(continued)*	Youth Dependency Ratio (2005)	Old Age Dependency Ratio (2005)	Increase – OA DR (2001-2005)	Total Dependency Ratio (2005)	PaSR (2005)	Sex Ratio – Age 20-29 (2005)	Labour Force Replacement Ratio (2005)	Age 20-39 Increase (2001-2005)	Age 20-64 Increase (2001-2005)	Age 50-64 Increase (2001-2005)	Age 65+ Increase (2001-2005)	Age 80+ Increase (2001-2005)
Total	Mean	24.63	24.93	1.01	49.57	8.91	104.32	109.65	-0.41	0.50	1.45	1.45	3.96
	Minimum	14.76	6.16	-1.98	34.50	3.26	90.72	53.77	-3.14	-1.44	-1.79	-2.30	0.07
	Maximum	59.65	42.43	5.58	65.80	17.39	177.74	403.10	4.00	3.68	6.06	4.73	9.03
	Std. Deviation	4.50	5.04	1.29	5.10	2.82	6.64	30.94	1.15	0.79	1.35	1.01	1.62
1	Mean	24.32	21.02	-0.55	45.35	9.66	104.45	116.67	-2.11	-2.66	-2.88	-1.73	4.30
	Minimum	19.47	12.73	-1.56	38.88	4.63	97.25	79.12	0.44	1.30	0.54	0.21	2.28
	Maximum	33.61	28.95	0.62	52.15	14.96	110.62	163.01	4.00	3.55	6.06	3.24	7.26
	Std. Deviation	4.47	4.53	0.71	3.30	2.72	3.77	28.00	0.99	0.68	1.21	0.88	1.19
2	Mean	26.04	26.65	1.06	52.69	10.07	103.34	103.05	-1.04	0.31	1.15	1.45	3.42
	Minimum	21.64	22.94	-0.67	46.25	6.44	97.15	81.41	-2.84	-0.50	-1.13	-0.47	0.70
	Maximum	29.49	32.23	3.86	58.74	14.63	117.63	122.68	0.25	1.02	3.41	3.59	7.84
	Std. Deviation	2.02	1.93	1.19	2.67	1.40	3.71	9.02	0.65	0.37	0.99	0.98	1.41
3	Mean	27.89	21.80	0.60	49.69	9.02	101.88	117.10	-0.51	0.66	1.94	1.26	3.54
	Minimum	21.85	15.62	-1.98	40.31	5.67	91.92	79.18	-2.09	-0.05	-0.12	-0.64	0.86
	Maximum	33.89	26.52	2.48	56.34	13.09	112.51	164.52	1.39	1.45	4.02	2.86	6.47
	Std. Deviation	2.65	2.16	0.98	3.41	1.66	4.14	17.34	0.67	0.36	0.87	0.87	1.56
4	Mean	21.02	29.34	2.32	50.36	8.54	110.56	96.65	-1.25	-0.41	-0.11	1.83	3.55
	Minimum	15.05	23.63	-1.04	41.97	3.73	97.33	74.86	-3.14	-1.44	-1.31	-2.30	0.96
	Maximum	26.20	35.18	5.58	57.86	13.78	177.74	127.03	1.36	0.70	2.15	4.73	6.62
	Std. Deviation	3.27	3.04	1.62	4.56	2.51	13.36	12.16	1.20	0.47	0.84	1.48	1.37
5	Mean	22.70	20.86	0.97	43.57	5.69	104.33	122.97	0.26	0.43	1.99	1.18	4.98
	Minimum	16.20	15.24	-1.66	34.50	3.26	95.26	69.33	-1.27	-0.40	-1.79	-1.18	0.07
	Maximum	29.61	28.85	3.54	52.15	13.39	129.09	183.57	2.17	1.53	4.68	3.50	9.03
	Std. Deviation	2.89	3.15	1.04	3.58	2.26	4.56	30.08	0.74	0.46	1.39	0.86	1.91
6	Mean	21.37	31.97	0.77	53.34	12.34	104.11	80.88	-0.15	0.78	1.18	1.42	4.25
	Minimum	14.76	27.25	-0.73	44.80	7.82	96.97	53.77	-1.68	-0.51	-1.10	0.20	2.00
	Maximum	27.04	42.43	2.30	61.02	17.39	112.98	103.76	1.72	2.08	3.59	2.74	6.44
	Std. Deviation	3.30	3.35	0.84	4.02	2.15	2.93	13.87	0.77	0.54	1.21	0.66	1.13
7	Mean	40.09	13.74	1.51	53.82	6.89	100.17	237.51	-0.20	1.47	3.49	2.85	4.94
	Minimum	29.61	6.16	-0.51	46.97	4.13	90.72	159.80	-1.79	0.23	1.54	1.99	3.93
	Maximum	59.65	17.36	2.28	65.80	9.17	110.78	403.10	3.05	3.68	5.50	3.70	5.99
	Std. Deviation	11.70	4.97	1.14	7.23	2.16	8.21	99.80	1.97	1.37	1.50	0.72	0.96

Data source: ESPON 2013 Database

Table A5.02: Highest formal education (15+) by sex (2007)

	Highest formal education 15+ (ISCED aggregated)								
	No formal education		Basic education		Secondary education		Tertiary education		Total
Men	(x 1.000)	%	(x 1.000)	%	(x 1.000)	%	(x 1.000)	%	(x 1.000)
Type 1	411	0.67	14,445	23.72	32,171	52.83	13,869	22.77	60,896
Type 2	587	1.27	13,342	28.84	25,659	55.47	6,673	14.42	46,261
Type 3	612	1.79	11,923	34.95	13,736	40.27	7,841	22.99	34,112
Type 4	636	2.54	12,737	50.93	8,295	33.17	3,343	13.37	25,011
Type 5	89	0.68	3,395	26.05	7,144	54.81	2,406	18.46	13,034
Type 6	200	1.29	8,094	52.36	3,510	22.71	3,654	23.64	15,458
Type 7	0	0.00	31	62.00	9	18.00	10	20.00	50
Total	2,535	1.30	63,967	32.83	90,524	46.46	37,796	19.40	194,822
Women	(x 1.000)	%	(x 1.000)	%	(x 1.000)	%	(x 1.000)	%	(x 1.000)
Type 1	616	0.98	19,330	30.84	31,157	49.71	11,576	18.47	62,679
Type 2	1,283	2.58	16,910	33.98	24,026	48.28	7,545	15.16	49,764
Type 3	1,097	3.06	13,878	38.68	12,746	35.52	8,161	22.74	35,882
Type 4	1,591	5.94	13,342	49.80	8,053	30.06	3,806	14.21	26,792
Type 5	180	1.31	4,173	30.31	6,829	49.60	2,585	18.78	13,767
Type 6	475	2.97	8,334	52.12	3,495	21.86	3,687	23.06	15,991
Type 7	7	12.73	30	54.55	10	18.18	8	14.55	55
Total	5,249	2.56	75,997	37.08	86,316	42.12	37,368	18.23	204,930
Both Sexes	(x 1.000)	%	(x 1.000)	%	(x 1.000)	%	(x 1.000)	%	(x 1.000)
Type 1	1,027	0.83	33,775	27.33	63,328	51.25	25,445	20.59	123,575
Type 2	1,870	1.95	30,252	31.50	49,685	51.74	14,218	14.81	96,025
Type 3	1,709	2.44	25,801	36.86	26,482	37.83	16,002	22.86	69,994
Type 4	2,227	4.30	26,079	50.34	16,348	31.56	7,149	13.80	51,803
Type 5	269	1.00	7,568	28.24	13,973	52.14	4,991	18.62	26,801
Type 6	675	2.15	16,428	52.24	7,005	22.27	7,341	23.34	31,449
Type 7	7	6.67	61	58.10	19	18.10	18	17.14	105
Total	7,784	1.95	139,964	35.01	176,840	44.24	75,164	18.80	399,752

Data source: EU-LFS 2007 (EUROSTAT 2008)

Table A6.03: ILO Labour Status (15+) by age and sex (2007)

	ILO Labour Force Indicators (2007) – Both sexes															
Type of Region	Labour Force (thsds.)				Unemployment Rate (%)				Crude Activity Rate (%)				LF Participation Rate (%)			
	15-64	15-24	55-64	65+	15-64	15-24	55-64	65+	15-64	15-24	55-64	65+	15-64	15-24	55-64	65+
Type 1	77,697	10,188	10,665	1,285	6.32	13.04	5.30	1.32	73.66	51.47	54.69	4.57	69.00	44.75	51.79	4.51
Type 2	53,144	5,347	5,460	1,165	8.27	18.72	5.38	1.03	65.77	33.33	40.61	6.67	60.33	27.09	38.42	6.60
Type 3	42,458	5,411	4,816	477	6.84	14.78	4.32	1.47	71.12	47.97	47.29	3.90	66.26	40.88	45.25	3.84
Type 4	27,381	2,174	2,879	561	5.39	15.64	2.85	0.89	68.94	36.80	38.41	4.51	65.22	31.05	37.32	4.47
Type 5	15,130	1,762	2,045	221	11.07	16.29	12.42	0.45	71.93	43.82	52.01	3.48	63.96	36.68	45.55	3.46
Type 6	19,187	2,313	1,907	163	8.01	16.95	5.72	1.23	71.70	49.66	47.45	3.00	65.96	41.24	44.74	2.96
LFS Space	235,047	27,202	27,775	3,872	7.19	15.26	5.45	1.14	70.46	44.07	47.41	4.72	65.39	37.35	44.83	4.66
Men																
Type of Region	Labour Force (thsds.)				Unemployment Rate (%)				Crude Activity Rate (%)				LF Participation Rate (%)			
	15-64	15-24	55-64	65+	15-64	15-24	55-64	65+	15-64	15-24	55-64	65+	15-64	15-24	55-64	65+
Type 1	42,156	5,508	6,075	816	6.19	13.44	5.32	1.35	79.95	54.19	63.12	6.73	75.00	46.91	59.77	6.64
Type 2	29,291	3,047	3,320	655	7.70	18.02	5.60	0.92	73.04	37.35	52.67	9.44	67.41	30.62	49.72	9.35
Type 3	23,122	2,862	2,711	314	6.53	14.99	4.54	1.59	77.78	50.28	54.29	6.02	72.70	42.74	51.82	5.92
Type 4	15,432	1,247	1,739	385	4.19	13.15	2.65	0.78	77.54	41.37	47.87	7.32	74.29	35.93	46.60	7.26
Type 5	8,141	960	1,132	142	10.42	15.63	11.57	0.70	76.55	46.15	59.42	5.46	68.58	38.94	52.55	5.42
Type 6	11,036	1,266	1,243	124	6.42	14.85	4.99	0.81	81.88	53.22	65.04	5.22	76.62	45.31	61.80	5.18
LFS Space	129,209	14,894	16,223	2,436	6.64	14.91	5.38	1.11	77.55	47.29	57.18	7.06	72.40	40.24	54.10	6.98
Women																
Type of Region	Labour Force (thsds.)				Unemployment Rate (%)				Crude Activity Rate (%)				LF Participation Rate (%)			
	15-64	15-24	55-64	65+	15-64	15-24	55-64	65+	15-64	15-24	55-64	65+	15-64	15-24	55-64	65+
Type 1	35,541	4,680	4,590	469	6.48	12.59	5.27	1.28	67.37	48.59	46.47	2.93	63.01	42.48	44.02	2.89
Type 2	23,853	2,300	2,140	510	8.98	19.65	5.05	1.18	58.61	29.17	29.96	4.84	53.34	23.44	28.45	4.78
Type 3	19,336	2,549	2,105	163	7.22	14.55	4.04	1.23	64.52	45.62	40.57	2.32	59.86	38.98	38.93	2.29
Type 4	11,949	927	1,140	176	6.95	18.99	3.16	1.14	60.30	32.04	29.52	2.45	56.11	25.96	28.59	2.42
Type 5	6,989	802	913	79	11.83	17.08	13.47	0.00	67.20	41.32	45.04	2.11	59.25	34.26	38.97	2.11
Type 6	8,151	1,047	664	39	10.17	19.48	7.08	2.56	61.37	45.94	31.50	1.27	55.13	36.99	29.27	1.24
LFS Space	105,838	12,308	11,552	1,436	7.87	15.69	5.55	1.18	63.39	40.72	38.24	3.02	58.40	34.33	36.12	2.98

Data source: EU-LFS 2007 (EUROSTAT 2008)

Table A5.04: Labour Force Indicators by Nationality (2007)

Type of Region	Labour Force Indicators (16-64 years) by Nationality (2007)							
	Unemployment Rate (%)				Labour Force Participation Rate (%)			
	National	EU27	Non-EU	Total	National	EU27	Non-EU	Total
Type 1	5.92%	7.64%	15.52%	6.32%	69.66%	70.22%	53.80%	69.00%
Type 2	8.14%	8.47%	18.38%	8.27%	60.34%	66.96%	57.10%	60.33%
Type 3	6.50%	6.32%	14.30%	6.84%	66.66%	72.60%	55.05%	66.26%
Type 4	5.08%	7.53%	10.16%	5.39%	65.19%	68.01%	64.98%	65.22%
Type 5	11.00%	16.25%	13.38%	11.07%	64.01%	57.76%	63.24%	63.96%
Type 6	7.64%	8.59%	11.08%	8.01%	65.24%	70.04%	69.63%	65.96%
LFS Space	6.92%	7.59%	13.61%	7.19%	65.54%	70.23%	59.29%	65.39%

Data source: EU-LFS 2007 (EUROSTAT 2008)

Table A5.05: Duration of unemployment by age and sex (2007)

	Duration of Unemployment (2007) – in % of all unemployed persons (in this age group)								
	15-64 years			15-24 years			55-64 years		
	less than 6 months	6-12 months	1 year or longer	less than 6 months	6-12 months	1 year or longer	less than 6 months	6-12 months	1 year or longer
Both Sexes									
Type 1	40.86	16.27	42.87	56.65	18.28	25.07	25.00	12.96	**62.04**
Type 2	32.29	15.89	**51.82**	41.50	19.01	**39.49**	22.04	13.44	**64.52**
Type 3	48.06	15.50	36.45	59.33	16.27	24.40	25.41	18.03	56.56
Type 4	51.16	15.10	33.74	57.14	16.77	26.09	29.17	18.75	52.08
Type 5	31.90	16.00	**52.09**	51.33	14.00	**34.67**	22.14	12.21	**65.65**
Type 6	**65.89**	14.16	19.95	**73.94**	13.83	12.23	37.10	19.35	43.55
LFS Space	41.90	15.74	42.36	54.53	17.29	28.18	25.09	14.43	**60.48**
Men									
Type 1	46.05	16.25	37.71	62.61	19.48	17.91	21.85	20.59	57.56
Type 2	30.70	17.64	51.66	43.21	19.15	37.64	21.15	17.31	61.54
Type 3	46.30	17.55	36.15	61.84	18.38	19.78	21.18	16.47	62.35
Type 4	47.34	15.02	37.64	60.57	13.71	25.71	37.84	13.51	48.65
Type 5	28.41	13.75	57.84	51.47	19.85	28.68	12.20	9.76	78.05
Type 6	63.61	15.58	20.81	77.94	13.73	8.33	38.30	8.51	53.19
LFS Space	42.28	16.40	41.32	58.47	18.11	23.42	21.92	16.09	61.99
Women									
Type 1	43.31	16.26	40.43	59.29	18.81	21.90	23.67	16.19	60.14
Type 2	31.51	16.75	51.74	42.27	19.08	38.65	21.72	14.83	63.45
Type 3	47.22	16.48	36.30	60.49	17.25	22.27	23.67	17.39	58.94
Type 4	49.00	15.05	35.95	58.93	15.18	25.89	32.94	16.47	50.59
Type 5	30.20	14.91	54.89	51.40	16.78	31.82	17.32	11.02	71.65
Type 6	64.67	14.92	20.41	76.02	13.78	10.20	37.61	14.68	47.71
LFS Space	42.09	16.06	41.85	56.36	17.67	25.97	23.76	15.13	61.11

Data source: EU-LFS 2007 (EUROSTAT 2008)

Table A5.06: Economic activity by ISCO sector – age 15-64 (2007)

	Economic activity (Labour Force 15-64 years) by Sector (2007) in % of Total Labour Force								
	Agriculture		Industry			Services			
Type of Region	Agriculture, hunting and forestry	Fishing	Mining and quarrying	Manufacturing	Electricity, gas and water supply	Construction	Wholesale and retail trade; repair of motor vehicles and personal/house hold goods	Hotels and restaurants	Transport, storage and communication
Type 1	2.34	0.06	0.29	18.54	0.73	7.27	14.14	3.84	5.95
Type 2	11.43	0.09	0.98	21.03	1.42	8.10	14.48	3.20	6.43
Type 3	2.44	0.07	0.22	14.59	0.57	7.06	13.64	4.06	6.60
Type 4	3.96	0.21	0.25	20.95	0.65	8.86	14.56	5.05	5.41
Type 5	6.50	0.12	0.58	18.64	1.35	9.13	13.56	4.16	6.55
Type 6	3.75	0.08	0.23	14.46	0.59	13.33	15.39	7.14	6.17
LFS Space	4.95	0.09	0.44	18.34	0.87	8.21	14.24	4.17	6.17
	Services								Other
(contd.)	Financial intermediation	Real estate, renting and business activities	Public administration & defence; compulsory social security	Education	Health and social work	Other community, social and personal service activities	Private households with employed persons	Extra-territorial organisations and bodies	other / no answer
Type 1	3.57	10.10	7.55	7.57	12.28	4.90	0.68	0.06	0.13
Type 2	2.09	6.81	6.45	6.80	6.26	3.81	0.57	0.03	0.03
Type 3	3.68	12.24	7.99	7.22	12.28	5.01	1.09	0.15	1.09
Type 4	2.76	10.23	6.30	6.08	7.98	4.63	2.06	0.06	0.02
Type 5	1.80	7.25	8.58	7.03	9.43	5.05	0.23	0.04	0.02
Type 6	2.79	10.24	5.93	5.89	6.52	4.10	3.31	0.04	0.04
LFS Space	2.99	9.60	7.17	6.99	9.78	4.59	1.08	0.07	0.25

Data source: EU-LFS 2007 (EUROSTAT 2008)

Table A5.07: Economic activity by ISCO sector and Nationality – age 15-64 (2007)

	Economic activity by Nationality – Labour Force 15-64 years by Sector (2007) in % of Total Labour Force								
	Agriculture		Industry			Services			
National Population	Agriculture, hunting and forestry	Fishing	Mining and quarrying	Manufacturing	Electricity, gas and water supply	Construction	Wholesale and retail trade	Hotels and restaurants	Transport, storage and communication
Type 1	2.40	0.06	0.29	18.20	0.75	7.29	14.23	3.42	5.95
Type 2	11.58	0.09	0.99	21.14	1.43	7.95	14.52	3.08	6.46
Type 3	2.56	0.08	0.22	14.82	0.60	6.69	13.77	3.63	6.68
Type 4	3.99	0.22	0.24	20.86	0.68	8.06	15.05	4.74	5.48
Type 5	6.56	0.11	0.57	18.53	1.35	8.95	13.60	4.02	6.59
Type 6	3.63	0.08	0.25	15.10	0.65	11.69	15.86	5.58	6.61
LFS Space	5.12	0.09	0.45	18.39	0.90	7.85	14.39	3.73	6.23
	Services								Other
National (contd.)	Financial intermediation	Real estate, renting and business activities	Public administration & defence	Education	Health and social work	Other community, social and personal service activities	Private households with employed persons	Extra-territorial organisations and bodies	other / no answer
Type 1	3.68	10.00	7.88	7.74	12.39	4.90	0.65	0.04	0.12
Type 2	2.11	6.77	6.53	6.86	6.27	3.76	0.41	0.03	0.03
Type 3	3.67	11.91	8.44	7.44	12.52	4.97	0.85	0.06	1.10
Type 4	2.93	10.35	6.74	6.44	8.24	4.68	1.21	0.06	0.02
Type 5	1.83	7.22	8.77	7.05	9.52	5.05	0.21	0.05	0.02
Type 6	3.13	10.72	6.95	6.66	7.08	4.34	1.60	0.03	0.05
LFS Space	3.07	9.50	7.52	7.20	9.92	4.59	0.74	0.04	0.25
	Agriculture		Industry			Services			
EU27 Citizens	Agriculture, hunting and forestry	Fishing	Mining and quarrying	Manufacturing	Electricity, gas and water supply	Construction	Wholesale and retail trade	Hotels and restaurants	Transport, storage and communication
Type 1	1.63	0.00	0.15	25.50	0.51	7.36	12.75	9.45	6.20
Type 2	1.79	0.00	0.00	17.86	0.89	12.05	10.27	13.84	3.13
Type 3	0.98	0.00	0.23	12.09	0.15	13.74	11.11	7.06	4.58
Type 4	5.10	0.00	0.41	16.94	0.20	24.08	6.73	7.96	4.69
Type 5	4.35	0.00	0.00	20.29	0.00	13.04	8.70	11.59	1.45
Type 6	5.72	0.00	0.00	10.22	0.00	21.12	9.13	15.80	6.68
LFS Space	2.47	0.00	0.17	18.18	0.31	13.22	10.96	9.84	5.46
	Services								Other
EU27 (contd.)	Financial intermediation	Real estate, renting and business activities	Public administration & defence	Education	Health and social work	Other community, social and personal service activities	Private households with employed persons	Extra-territorial organisations and bodies	other / no answer
Type 1	2.39	10.46	2.44	5.54	9.45	4.62	0.86	0.66	0.05
Type 2	0.45	10.27	1.34	5.36	7.14	7.59	8.04	0.00	0.00
Type 3	4.80	15.09	2.93	5.26	9.08	5.18	4.58	2.18	0.98
Type 4	0.82	9.59	0.61	2.04	5.51	3.67	11.63	0.00	0.00
Type 5	0.00	17.39	0.00	11.59	5.80	4.35	1.45	0.00	0.00
Type 6	1.09	9.81	0.14	2.59	3.13	3.00	11.31	0.27	0.00
LFS Space	2.57	11.64	1.95	4.73	7.82	4.57	4.92	0.91	0.29
	Agriculture		Industry			Services			
Non-EU Citizens	Agriculture, hunting and forestry	Fishing	Mining and quarrying	Manufacturing	Electricity, gas and water supply	Construction	Wholesale and retail trade	Hotels and restaurants	Transport, storage and communication
Type 1	0.98	0.04	0.30	22.55	0.26	6.29	12.88	11.25	5.69
Type 2	2.70	0.00	0.18	12.79	0.72	18.92	13.15	9.19	5.41
Type 3	0.99	0.00	0.31	11.46	0.18	9.80	12.75	11.34	6.59
Type 4	3.06	0.08	0.31	24.04	0.08	18.15	8.25	9.82	4.40
Type 5	4.07	0.41	1.22	23.58	1.63	17.48	12.60	9.35	6.10
Type 6	4.08	0.06	0.11	10.59	0.34	23.63	14.16	15.69	2.44
LFS Space	2.24	0.05	0.28	17.12	0.31	14.13	12.40	11.85	4.92
	Services								Other
Non-EU (contd.)	Financial intermediation	Real estate, renting and business activities	Public administration & defence	Education	Health and social work	Other community, social and personal service activities	Private households with employed persons	Extra-territorial organisations and bodies	other / no answer
Type 1	1.37	12.97	2.18	4.54	11.68	5.13	1.20	0.21	0.47
Type 2	0.72	9.37	1.08	2.70	5.59	6.31	10.63	0.36	0.18
Type 3	3.02	17.50	2.03	3.70	9.61	5.61	3.64	0.55	0.92
Type 4	0.08	8.09	0.16	0.79	3.93	4.16	14.53	0.08	0.00
Type 5	0.41	6.10	0.81	4.88	4.47	5.28	1.63	0.00	0.00
Type 6	0.57	6.46	0.51	1.13	3.00	2.61	14.62	0.00	0.00
LFS Space	1.24	11.17	1.32	2.86	7.36	4.59	7.60	0.22	0.35

Data source: EU-LFS 2007 (EUROSTAT 2008)

Annex 6 – Assignments & Adaptations

Assignment of Outlier Regions

Addressing the final classification, the number of cases changed – in total and per type – in the course of the integration of some outlier regions from the original Type 7 to one of the other 6 types of the classification. It was necessary to aggregate the two NUTS 2 regions of London into one NUTS 1 region.

The original Type 7 of the (k-Means) classification included 10 regions (see Tab. 2) and constituted a special type of significant outlier regions. By reassigning five outlier-regions – Inner London (UKI1), Flevoland (NL23), Iceland (IS00), Île de France/Paris (FR10) and Southern and Eastern Ireland (IE02), we not only achieved the inclusion of some important regions, e.g. the metropolises of London and Paris, into the six main types, but also managed to give Type 7 – now including only regions outside the European mainland (continent) a more significant meaning, besides being a type of outlier regions.

Table A6.01: Assignment of Outlier Regions

			Age Group 20-39 (%)			Age Group 65+ (%)			Natural Population Increase (per 1000)			Net Migration (per 1000)		
	type	cases	avg	min	max	avg	min	max	avg	min	max	avg	min	max
Basic Typology – Original	1	79	*25.68*	22.57	28.72	*17.46*	15.33	20.30	*0.01*	-2.67	2.47	*3.43*	-2.11	9.36
	2	61	*30.43*	28.33	33.84	*14.51*	10.60	18.96	*-0.78*	-4.76	2.89	*0.08*	-7.35	9.19
	3	53	*28.02*	24.80	31.88	*14.69*	11.13	16.96	*3.51*	1.06	6.94	*2.17*	-3.51	9.59
	4	33	*26.87*	21.52	31.19	*20.83*	18.51	26.51	*-1.74*	-6.19	1.43	*9.42*	4.14	16.99
	5	38	*26.32*	21.47	30.04	*19.49*	15.89	22.55	*-3.39*	-10.35	-0.59	*-1.20*	-11.25	3.70
	6	13	*32.42*	29.55	35.86	*15.17*	11.93	19.03	*2.76*	-0.15	6.22	*17.79*	9.96	26.30
	7	10	*31.66*	27.02	43.16	*9.84*	3.71	12.49	*11.30*	8.11	25.28	*1.59*	-8.18	14.10
	EU 27+4	287	*27.86*	21.47	43.16	*16.61*	3.71	26.51	*0.35*	-10.35	25.28	*3.15*	-11.25	26.30
Outlier Assignment	3	UKI	36.32			11.96			7.30			-2.07		
	7	UKI1	**43.16**			9.49			9.84			-1.52		
	3	IS00	28.68			11.78			8.11			3.23		
	6	NL23	29.36			8.70			9.78			14.10		
	3	FR10	30.37			12.49			9.00			-2.09		
	6	IE02	33.04			10.76			8.47			11.03		
	type	cases	avg	min	max	avg	min	max	avg	min	max	avg	min	max
Basic Typology – Reassigned	1	79	*25.68*	22.57	28.72	*17.46*	15.33	20.30	*0.01*	-2.67	2.47	*3.43*	-2.11	9.36
	2	61	*30.43*	28.33	33.84	*14.51*	10.60	18.96	*-0.78*	-4.76	2.89	*0.08*	-7.35	9.19
	3	55	*28.15*	24.80	36.32	*14.57*	11.13	16.96	*3.72*	1.06	9.00	*2.12*	-3.51	9.59
	4	38	*26.32*	21.47	30.04	*19.49*	15.89	22.55	*-3.39*	-10.35	-0.59	*-1.20*	-11.25	3.70
	5	33	*26.87*	21.52	31.19	*20.83*	18.51	26.51	*-1.74*	-6.19	1.43	*9.42*	4.14	16.99
	6	15	*32.26*	29.36	35.86	*14.45*	8.70	19.03	*3.61*	-0.15	9.78	*17.10*	9.96	26.30
	7	5	*30.40*	27.02	32.55	*9.04*	3.71	11.81	*13.56*	8.40	25.28	*-1.78*	-8.18	9.07
	EU 27+4	286	*27.82*	21.47	36.32	*16.63*	3.71	26.51	*0.33*	-10.35	25.28	*3.16*	-11.25	26.30

The assignment was done by means of the particular values and ranges of the four cluster variables (see Tab. A4.02). In doing so, it was necessary to aggregate the two NUTS 2 regions of London (UKI1, UKI2) into one NUTS 1 region (UKI), because the values of the proportion of the age group 20 to 39 years of Inner London (43,16%) are far beyond the corresponding ranges of the six main types.

As a consequence of the adaption of these five outlier-regions, the ranges and average values of Type 3, Type 6 and Type 7, as well as the overall (EU 27+4) ranges and average values changed in respect to the result of the original classification (see Tab A4.02).

Adapting the Demographic Typology to the EU-LFS 2007 Data Set

As mentioned in Chapter 5.1.3, the original demographic typology (see Chapter 5) had to be adapted to the EU-LFS 2007 spatial structure, which is (a) not covering all ESPON countries (Malta, Iceland, Switzerland and Liechtenstein, as well as the French Overseas Departments and Territories of Martinique, Guadeloupe, Guyane and Réunion are not included) and is (b) deviating from the NUTS 2 scheme in some cases, e.g. regions in Austria, Germany and UK are aggregated to NUTS 1 level, while there is no regional differentiation for the Netherlands at all.

Table A6.02: Data set comparison: Typology (2005) vs. EU-LFS (2007)

Type of Region	Dataset Comparison – ESPON Database 2013 & EU-LFS 2007											
	Typology 2005 (LFS_version)				LFS 2007				Difference (LFS 2007 - Typology 2005)			
	pop (1.000)	pop (%)	20-39 (%)	65+ (%)	pop (1.000)	pop (%)	20-39 (%)	65+ (%)	pop (1.000)	pop (%)	20-39 (%)	65+ (%)
Type 1	159,284	32.28	25.68	17.56	157,984	32.16	25.71	17.81	-1,300	-0.12	0.03	0.26
Type 2	116,768	23.67	30.43	14.51	115,949	23.61	30.33	15.07	-819	-0.06	-0.10	0.57
Type 3	88,782	17.99	28.19	14.88	87,210	17.76	28.78	14.04	-1,572	-0.24	0.60	-0.85
Type 4	60,003	12.16	27.50	21.00	60,426	12.30	26.69	20.59	423	0.14	-0.81	-0.41
Type 5	31,856	6.46	26.64	19.36	31,123	6.34	25.35	20.42	-733	-0.12	-1.29	1.06
Type 6	36,551	7.41	32.62	14.81	38,342	7.81	32.34	14.18	1,791	0.40	-0.28	-0.63
Type 7	138	0.03	32.32	11.51	139	0.03	30.71	12.86	1	0.00	-1.61	1.35
Total	493,382	100.00	28.31	16.72	491,173	100.00	27.96	16.72	-2,209	0.00	-0.35	-0.01

Another cluster analysis was carried out, based on the same input variables and methodology as applied for the original demographic typology (see Chapter 2.3). The result of the adapted cluster solution proved to be stable in regard to the original typology (see Tab. A6.02).