

Does population decline lead to economic decline in EU rural regions?

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Introduction

This paper shows that population decline in rural regions rarely leads to economic decline. In addition, it demonstrates that the decline of population¹ affects urban as much as rural regions. Lastly, it reveals that between 2000 and 2007 the increase in GDP per head was highest in rural regions in the EU-15, while in the Central and Eastern European Countries (CEECs) it was highest in urban regions.

The first section analyses population changes by type of region. It concludes that population decline is most likely to occur in rural regions but a high share of population in rural regions has no impact on the likelihood of population decline. The second section concludes that economic decline² can occur in all types of regions, but that the pattern is influenced by the level of a country's development. In the CEECs³, growth is concentrated more in urban regions. Nevertheless, the economic growth of rural regions in CEECs was still above the EU average. This higher growth in urban regions is a result of a transition process and is expected to diminish over time.

In the EU-15⁴, urban regions started to approach the limits of their growth and the benefits of agglomeration effects started to be more widely available to the rural regions. As a result, growth is shifting towards rural regions with larger GDP per head increases in rural than in urban regions⁵. The last section examines the relationship between population decline and economic decline. It shows that more developed regions attract more people, but a decline in population does not lead to less development. Rural regions being less developed attract less people from other regions, but only a few regions with population decline also experience economic decline. In the CEECs economic catching-up and population decline go hand in hand. In the EU-15, economic decline occurs regardless of population changes.

¹ Population decline is defined as the combination of absolute decline in the population and a negative change of more than 2.5% in the share of the countries' total population. As some Member States are facing an absolute decline, this double criterion ensures that no entire countries are selected as declining. The choice of the criterion was made in order to gain a representative sample of regions that would correspond to +/- 20% of the total number of regions.

² Economic decline is defined as GDP per head growth which is substantially lower than the national rate between 2000 and 2007. This is measured as a more than 5% (EU-15) or 9% (CEECs) loss of the region's GDP per head relative to the national average. The choice of the criterion was made in order to gain a representative sample of regions that would correspond to +/- 20% of the total number of regions within each group of countries.

³ The definition does not include Cyprus because it consists of only one NUTS-3 region and Malta because nearly 90% of its population is concentrated in one of the two NUTS-3 regions.

⁴ The definition does not include Luxembourg because it has only one NUTS-3 region.

⁵ Labour market areas which consist of multiple NUTS-3 regions tend to be classified in one type of region. As a result, the change in the share of GDP is not distorted by the commuting effect.

1. In what type of regions does population decline occur?

In the EU-27, around 24% of the EU's population lives in rural regions, around 35% lives in intermediate regions and slightly more than 40% lives in urban regions⁶. The share of population living in different types of regions varies across the EU, especially between the more and the less developed countries. Overall, in the EU-15, the population share of the rural regions is less than 20% and more than 46% of the population lives in urban regions. In the CEECs, the share of rural regions is more than 40% and only around 20% of the population lives in urban regions. In other words, 8 in 10 people in CEECs live outside urban regions; whereas, in the EU-15, it is only around 5 in 10.

As shown in Table 1.1 (Annex), the economically more developed countries show much more diversity in the regional composition of their territories. For example, Ireland, Finland and Denmark have between 43% (FI, DK) and 72% (IE) of their population living in rural regions and the population share of urban regions is only between 20 to 27%. By contrast, in the Netherlands, the UK and Belgium, around 70% of the population lives in urban regions and the share of rural regions is only between 1 and 9%. In the CEECs, most countries have high shares of intermediate and rural regions and low shares of urban regions.

Table 1 - Share of population living in different types of regions, 2007

Country	Urban	Intermediate	Rural
CEECs	20.5	38.3	41.3
EU-15	46.2	34.6	19.2
EU	40.9	35.3	23.7

Source: Eurostat, DG REGIO calculations

Table 2 shows the growth rate of population between 2000 and 2007 (for more detailed data see Table 2.1).

Table 2 - Total change in population 2000-2007 (in %)

Country	Urban	Intermediate	Rural
CEECs	-0.7	-1.5	-2.6
EU-15	4.5	4.1	2.7
EU	3.9	2.8	0.7

Source: Eurostat, DG REGIO calculations

In 2007, around 13% of the EU's population lived in regions that experienced population decline in the period since 2000 where 40% of these come from rural regions and the rest is evenly distributed among the urban and intermediate regions.

⁶ Urban = predominantly urban, Intermediate = intermediate, Rural = predominantly rural according to the definition of the EU applied to NUTS-3 regions.

Table 3 - Share of population in 2007 living in regions with population decline between 2000 and 2007 by type of region

Country	Total	Urban	Intermediate	Rural
CEECs	16.0	33.6	27.8	38.6
EU-15	11.8	28.5	29.3	42.2
EU	12.7	29.8	28.9	41.3

Source: Eurostat, DG REGIO calculations

Table 3 shows the share of people living in a declining region of the total population in each type of region. In the EU-15, the likelihood of finding oneself in a declining region is highest in rural regions. Given the low share of people living in this type of region, however, the share of the EU's population concerned by population decline in rural regions is almost the same as the share of people concerned by population decline in the urban regions which represent a much higher share of population. In the CEECs, the occurrence of regions with declining population is most frequent in rural regions.

Table 4 - Share of population in 2007 by type of region living in regions with population decline between 2000 and 2007

Country	Urban	Intermediate	Rural
IE			
SK			
EE		24.7	
HU	100.0	19.9	25.8
RO		5.0	15.3
LT			11.8
FI		19.7	58.5
EL		17.4	48.9
DK			1.8
CEECs	26.2	11.6	14.9
EU-15	7.3	10.0	26.0
EU	9.2	10.4	22.0

Source: Eurostat, DG REGIO calculations

Table 4 lists the countries with the highest population share in rural regions ranging from 73% in Ireland to 43% in Denmark. The most extreme cases are in Finland and Greece where one in two rural residents live in a region faced with population decline (see Table 4.1 for details).

In the first three countries with the highest share of rural regions - Ireland, Slovakia and Estonia - there is no population decline in rural regions. A high share of population in rural regions, therefore, has no impact on the likelihood of population decline.

Hence, population decline happens in all types of regions and it is not only a matter of rural and intermediate regions, though it is more likely to occur there.

2. What type of regions are confronted with relative economic decline?

In the CEECs, GDP per head in rural regions is only 73% of the national value and almost two and a half times lower than the GDP per head in the urban regions. In the EU-15, the difference in GDP per head between urban and rural regions is less than a third and therefore almost eight times less than in the CEECs.

Table 5 - GDP per head in 2007, National=100*

Country	Urban	Intermediate	Rural
CEECs	169.0	91.6	73.4
EU-15	114.7	90.5	81.8
EU	124.4	89.7	73.3

Source: Eurostat, DG REGIO calculations

* for the aggregate figures, the reference value is CEECs=100, EU-15=100 and EU=100

The concentration of economic activity in urban regions and the large disparities between regional types are mainly a consequence of the transition process and occur mostly in less developed countries. In the past years, urban regions in the CEECs have experienced strong growth, helped by agglomeration economies which in turn boosted the country's GDP. Indeed, in 2000–2006, the GDP in the CEECs grew at double speed as compared to the rates observed in the EU-15. Not all the regions have benefited equally from the process of economic growth and some have seen their share of national GDP decline. In the CEECs, decline of GDP share occurred in intermediate and rural regions. The CEECs represent only about 7% of the EU's GDP; therefore the overall trend in the Union reflects mainly the one in the EU-15 which is a slight shift of the GDP share expressed in percentage points (pp) towards rural regions, as shown in Table 6 (see Table 6.1 for details).

Table 6 - Change in GDP share and GDP index, 2000-2007

Country	Change (in pp) of GDP share			Change in index points of GDP/head, EU-27=100			Change in index points of GDP/head, National=100*		
	Urban	Intermediate	Rural	Urban	Intermediate	Rural	Urban	Intermediate	Rural
CEECs	0.9	0.0	-0.9	21.0	9.9	6.9	5.1	-0.4	-2.7
EU-15	0.0	-0.3	0.3	-4.4	-4.2	-1.6	-0.1	-0.8	1.3
EU	-0.4	-0.2	0.6	-1.5	-0.4	2.2	-1.5	-0.4	2.2

Source: Eurostat, DG REGIO calculations

* for the aggregate figures, the reference value is CEECs=100, EU-15=100 and EU=100

As countries become more developed, the advantages of agglomeration become more widely available throughout the country due to improvements in the business environment, communication and transport infrastructure and the education of the labour force outside the

urban regions. At the same time, part of the benefits of the agglomeration economies gets replaced by costs like congestion, high unemployment rate and crime. As a result, economic activity and thus GDP will start to diffuse to less developed regions, often rural regions and the gap between the two will start to close leading to a more balanced development. This is clearly shown in the third part of Table 6 showing on the one hand that in CEECs the strongest increase in GDP per head occurred in urban regions, while in the EU-15 rural regions experienced the strongest increase in GDP per head.

Between 2000 and 2007, rural regions in the CEECs experienced a positive change relative to the EU level but rural regions declined relative to the national average. On the other hand, changes in GDP per head relative to the national as well as the EU average were extremely high in the urban regions.⁷

The figures in the EU-15 show a more balanced picture with rural regions losing less than the rest, as compared to the EU average and with rural regions gaining while others were losing, relative to the national level. On the EU level, rural regions saw the biggest improvement relative to the EU level in their GDP per head. Hence, changes in GDP seem less related to the type of the region than the overall level of development in their country of origin. All the countries with high population decline and/or economic decline in rural regions, and to some extent also in the intermediate regions, have a GDP below the EU average. Most countries with low or no population decline and no or a slight shift of GDP share towards rural regions, have higher levels of development.

3. Does population decline lead to economic decline?

Are regions with a declining population more likely to face economic decline? Map 1 shows that the combination of population and economic decline is more the exception than the rule. According to Table 7, only 4% of the population in the CEECs lives in a region facing both types of decline. This represents a fifth of those who live in a region with economic decline and only a quarter of those who live in regions with population decline.

This combination is even more exceptional in the EU-15. Only one in ten of those who live in a region with a declining population see their economy decline and only one in thirteen of those who live in a region with economic decline face population decline. In other words, population decline and economic decline in the more developed countries in the vast majority of cases occur alone (see Table 7.1 for details). This applies also when we look at the three regional types individually as shown in Table 8 (see Table 8.1 for details).

Table 7 - The share of population in 2007 living in regions with economic decline or population decline or both between 2000 and 2006

⁷ For more details see: Dijkstra, L., 'Metropolitan regions in the EU', *Regional Focus*, No 01, DG Regional Policy, Brussels, 2009.

Country	% of population in regions with economic decline	% of population in regions with population decline	% of population in regions with economic and population decline
CEECs	18.3	16.0	4.0
EU-15	21.4	11.8	1.6
EU	20.8	12.7	2.1

Source: Eurostat, DG REGIO calculations

Although, in the CEECs, the likelihood of facing economic and population decline simultaneously is highest in rural regions, it concerns only 7% of the population living there. In the EU-15 population decline and economic decline occur jointly only in a few cases and mainly in rural regions which have the lowest share of population.

Table 8 - The share of population in 2007 by type of regions living in regions with economic decline and population decline between 2000 and 2007

Country	% of population in regions with economic and population decline		
	Urban	Intermediate	Rural
CEECs	0.0	3.3	6.7
EU-15	1.9	1.0	2.2
EU	1.7	1.5	3.9

Source: Eurostat, DG REGIO calculations

Given the low birth rates in the EU, most changes in the population occur due to migration from one region to another. Most migrants move within the same country and most of them are of working age⁸. Regions that are more developed attract more workers. Hence, differences in population change tend to reflect differences in development across regions and not the other way round. This helps to explain why the population in rural regions tends to grow more slowly or decline than in other regions.

Table 9 analyses countries with a high share of rural population.⁹ It compares countries with low levels of economic development and high population decline to countries with higher levels of economic development and stable or positive population change. The first group entails Slovakia, Estonia, Hungary, Romania, Lithuania, Bulgaria, Latvia and Poland. The second group consists of Ireland, Finland Greece, Austria, Portugal, France, Sweden and Italy.

⁸ For more details see: Gáková, Z., Dijkstra, L., 'Labour mobility between the regions of the EU-27 and comparison with the USA', *Regional Focus*, No 02, DG Regional Policy, Brussels, 2008

⁹ High share means a population share of more than 35% for the CEECs and a population share of more than 20% for the EU-15.

In the less developed countries, the probability that a rural region with declining population will face economic decline is highest in Lithuania, followed by Bulgaria and Hungary. In Lithuania it only concerns one of the four rural regions in the country. Hungary and Bulgaria, at the same time, are among the countries with the highest disparities in economic development between urban and rural regions, in the EU. In Slovakia and Estonia where the share of rural regions is the highest, however, population decline and economic decline occur always alone.

Rural regions in the more developed countries rarely face both population decline and economic decline at the same time. The figures range from Ireland which is 72% rural with no population decline to Italy (20% rural) without a match between economic and population decline. The highest probability that a region will face both population and economic decline simultaneously, occurs in Greece, however, given its GDP per head, one could argue that the country occupies an intermediate stage of development. In Sweden, only a single region faces both economic and population decline.

Table 9 – Share of population in 2007 in regions with population decline and economic decline between 2000 and 2007 located in countries with high population share in rural regions

	% of population living in regions with economic decline facing also population decline		% of population living in regions with population decline facing also economic decline	
	Urban	Rural	Urban	Rural
More developed countries				
IE				
FI				
GR		37.9		47.1
AT				
PT				
FR		10.4		8.1
SE		100.0		16.4
IT				
Less developed countries				
SK				
EE				
HU		36.2		67.4
RO		26.9		58.7
LT		18.3		100.0
BG		49.9		76.0
LV				
PL				

Source: Eurostat, DG REGIO calculations

Hence, in the more developed countries, economic decline occurs in regions with both population decline and growth. In the less developed countries economic decline occurs mainly in regions with population decline and is mostly concentrated in rural regions. However, as shown above, population decline does not hinder the rural regions from growing.

They have improved their GDP per head index relative to the EU average and in the EU-15 relative to the national average. Overall in the EU, rural regions have been doing better than urban regions.

Conclusions

In less developed Member States, economic growth favoured urban regions between 2000 and 2007. A comparison with more developed EU Member States suggests that this trend is likely to reverse. As countries develop and improve the links between urban and rural regions, growth is likely to become higher in rural regions leading to a more balanced growth throughout their territory.

Table 1.1 - Share of population living in different types of regions, 2007

Country	Urban	Intermediate	Rural
BE	67.5	23.9	8.7
BG	16.2	44.9	39.0
CZ	23.1	43.6	33.3
DK	21.2	36.0	42.9
DE	42.3	40.4	17.4
EE		51.7	48.3
IE	27.7		72.3
GR	46.3	10.5	43.2
ES	48.5	38.2	13.3
FR	35.6	35.7	28.7
IT	35.6	43.9	20.5
LV	48.2	13.4	38.4
LT	25.1	31.2	43.6
HU	16.9	35.6	47.5
NL	71.1	28.2	0.7
AT	34.1	26.5	39.4
PL	28.3	33.8	37.9
PT	48.4	15.2	36.3
RO	10.4	43.8	45.9
SI		71.3	28.7
SK	11.3	38.3	50.4
FI	26.1	30.7	43.2
SE	21.1	56.2	22.7
UK	71.1	26.0	2.9
CEECs	20.5	38.3	41.3
EU-15	46.2	34.6	19.2
EU	40.9	35.3	23.7

Source: Eurostat, DG REGIO calculations

Table 2.1 - Total change in population between 2000 and 2007 (in %)

Country	Urban	Intermediate	Rural
BE	3.5	3.8	4.5
BG	1.6	-5.8	-10.2
CZ	3.9	-0.8	0.0
DK	2.3	2.3	2.0
DE	1.0	-0.2	-1.5
EE		-1.7	-2.7
IE	8.5		17.2
GR	4.5	4.5	0.1
ES	12.6	11.9	6.5
FR	5.5	4.6	4.8
IT	4.6	4.9	2.3
LV	-1.9	-4.9	-6.1
LT	-0.6	-3.5	-5.2
HU	-5.7	1.9	-2.4
NL	3.0	2.6	0.1
AT	7.6	2.9	1.3
PL	-0.8	0.4	-0.7
PT	4.7	4.5	2.1
RO	-1.9	-4.4	-4.1
SI		2.0	0.3
SK	-1.4	0.0	0.2
FI	6.5	2.4	-0.4
SE	6.6	3.4	-0.7
UK	3.2	4.5	3.8
CEECs	-0.7	-1.5	-2.6
EU-15	4.5	4.1	2.7
EU	3.9	2.8	0.7

Source: Eurostat, DG REGIO calculations

Table 3.1 - Share of population in 2007 in regions with a population decline between 2000 and 2007 by type of region

Country	National	Urban	Intermediate	Rural
BE				
BG	31.8		51.0	49.0
CZ	12.1		100.0	
DK	0.8			100.0
DE	20.9	31.5	41.3	27.2
EE	12.8			
IE				
GR	22.9		7.9	92.1
ES	6.5		70.3	29.7
FR	3.6			100.0
IT	13.1	14.4	34.2	51.4
LV	25.9			100.0
LT	5.1			100.0
HU	36.3	46.6	19.6	33.8
NL	13.4	90.7	9.3	
AT	13.8		14.8	85.2
PL	15.4	64.3	11.6	24.1
PT	13.9			100.0
RO	9.2		23.8	76.2
SI	8.3			100.0
SK				
FI	31.3		19.3	80.7
SE	21.7		25.2	74.8
UK	8.3	92.0	7.1	0.9
CEECs	16.0	33.6	27.8	38.6
EU-15	11.8	28.5	29.3	42.2
EU	12.7	29.8	28.9	41.3

Source: Eurostat, DG REGIO calculations

**Table 5.1 - GDP per head in 2007,
National=100**

Country	Urban	Intermediate	Rural
BE	112.0	79.3	63.3
BG	225.1	81.5	69.3
CZ	154.5	83.8	83.4
DK	140.8	87.2	90.6
DE	116.6	89.3	84.5
EE		130.2	67.6
IE	145.9		82.4
GR	126.5	84.2	75.4
ES	110.6	93.2	80.9
FR	127.8	87.7	80.8
IT	109.3	96.9	90.6
LV	138.5	76.8	59.8
LT	156.7	98.4	68.5
HU	217.4	79.7	73.5
NL	103.8	90.1	116.1
AT	119.3	108.5	77.6
PL	147.6	91.4	72.1
PT	118.4	75.8	85.6
RO	221.4	98.8	73.7
SI		107.0	82.7
SK	236.9	85.6	80.3
FI	137.1	91.2	83.9
SE	134.0	92.1	88.0
UK	106.6	85.5	67.4
CEECs	169.0	91.6	73.4
EU-15	114.7	90.5	81.8
EU	124.4	89.7	73.3

Source: Eurostat, DG REGIO calculations

* for the aggregate figures, the reference value is CEECs=100, EU-15=100 and EU=100

Table 6.1 - Change in GDP share and GDP index, 2000-2007

Country	Change (in pp) of GDP share			Change in index points of GDP/head, EU-27=100			Change in index points of GDP/head, National=100		
	Urban	Intermediate	Rural	Urban	Intermediate	Rural	Urban	Intermediate	Rural
BE	0.0	0.1	0.0	-11.6	-7.9	-7.7	0.1	0.3	-0.9
BG	12.0	-6.0	-6.0	39.5	4.3	3.6	61.0	-14.0	-12.1
CZ	2.5	-1.4	-1.2	22.2	8.4	7.7	6.0	-2.0	-3.0
DK	-0.2	0.5	-0.3	-15.8	-7.1	-10.1	-1.1	1.4	-0.7
DE	-0.3	0.2	0.2	-5.4	-1.5	0.4	-1.9	0.7	2.3
EE	0.0	1.8	-1.8		32.4	14.6		2.9	-3.4
IE	0.7	0.0	-0.7	38.5		10.6	10.1		-2.8
GR	4.5	-0.1	-4.5	17.5	5.3	-0.4	7.6	-2.4	-8.3
ES	-0.2	0.4	-0.3	7.1	8.0	7.9	-1.5	0.8	1.7
FR	0.2	-0.5	0.3	-8.8	-7.4	-4.1	0.0	-1.2	1.3
IT	-0.4	0.0	0.4	-16.5	-13.7	-7.8	-1.6	-0.6	3.7
LV	1.1	-2.8	1.7	26.1	7.2	13.5	-0.7	-20.1	5.8
LT	5.9	-0.7	-5.2	39.1	18.7	9.5	19.7	-2.4	-10.6
HU	1.9	2.5	-4.4	27.0	8.4	0.7	19.9	4.6	-8.5
NL	-0.2	0.2	0.0	-2.7	-0.6	6.1	-0.4	1.0	6.3
AT	-0.5	0.0	0.5	-18.1	-8.0	-2.5	-6.0	1.0	3.1
PL	0.8	-0.5	-0.3	10.9	4.6	4.2	3.5	-2.3	-0.5
PT	-1.2	0.5	0.7	-5.7	0.1	0.5	-3.6	2.5	3.3
RO	1.0	0.9	-1.9	35.8	16.1	10.5	4.8	2.4	-4.0
SI	0.0	1.1	-1.1		10.4	5.1		1.0	-2.8
SK	1.9	-1.1	-0.8	51.7	13.6	13.2	19.8	-2.9	-1.8
FI	0.1	-0.2	0.1	-5.1	-0.4	3.5	-5.3	-1.0	2.4
SE	0.0	0.7	-0.6	-11.4	-2.4	-2.7	-4.8	0.9	0.5
UK	0.1	-0.1	0.0	-1.9	-3.6	-0.2	0.5	-1.4	1.1
CEECs	0.9	0.0	-0.9	21.0	9.9	6.9	5.1	-0.4	-2.7
EU-15	0.0	-0.3	0.3	-4.4	-4.2	-1.6	-0.1	-0.8	1.3
EU	-0.4	-0.2	0.6	-1.5	-0.4	2.2	-1.5	-0.4	2.2

Source: Eurostat, DG REGIO calculations

* for the aggregate figures, the reference value is CEECs=100, EU-15=100 and EU=100

Table 7.1 - Share of population in 2007 in regions with economic decline or population decline or both between 2000 and 2007

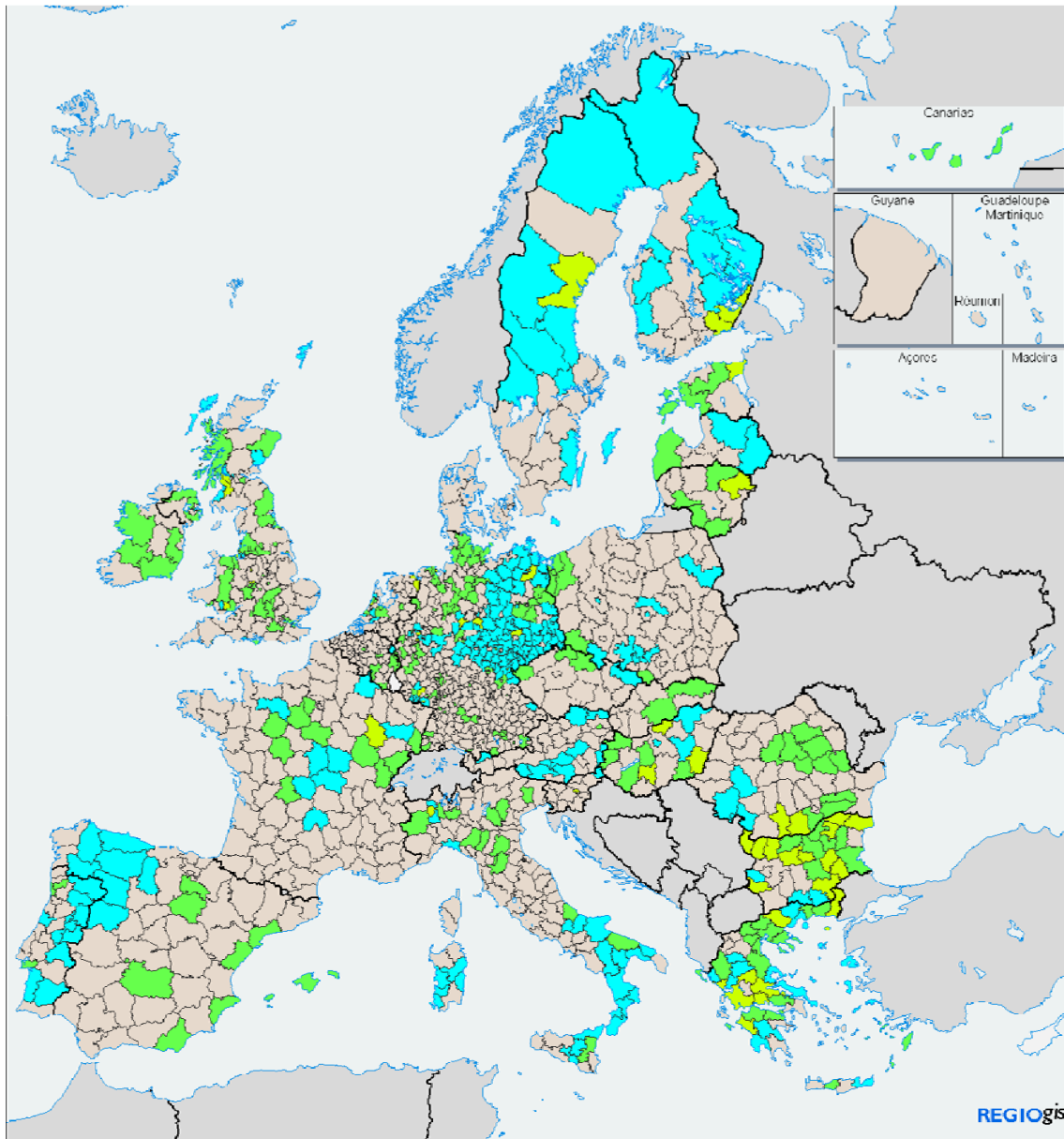
Country	% of population in regions with economic decline	% of population in regions with population decline	% of population in regions with economic and population decline
BE	14.5		
BG	51.6	31.8	26.2
CZ	12.5	12.1	
DK		0.8	
DE	23.9	20.9	1.7
EE	35.3	12.8	12.8
IE	40.6		
GR	41.0	22.9	9.9
ES	17.0	6.5	
FR	9.8	3.6	0.3
IT	25.1	13.1	0.3
LV	13.4	25.9	
LT	28.1	5.1	5.1
HU	27.0	36.3	8.3
NL	19.2	13.4	2.6
AT	20.1	13.8	
PL	6.1	15.4	
PT	24.3	13.9	
RO	24.1	9.2	4.1
SI	2.2	8.3	2.2
SK	27.0		
FI	6.0	31.3	6.0
SE	2.7	21.7	2.7
UK	32.5	8.3	4.2
CEECs	18.3	16.0	4.0
EU-15	21.4	11.8	1.6
EU	20.8	12.7	2.1

Source: Eurostat, DG REGIO calculations

Table 8.1 - The share of population in 2007 by type of regions living in regions with economic decline and population decline between 2000 and 2007

Country	% of population in regions with economic and population decline		
	Urban	Intermediate	Rural
BE			
BG		32.1	30.4
CZ			
DK			
DE	2.5	1.2	1.1
EE		24.7	
IE			
GR			23.0
ES			
FR			1.0
IT		0.7	
LV			
LT			11.8
HU			17.4
NL	1.9	4.4	
AT			
PL			
PT			
RO			9.0
SI			5.1
SK			
FI		19.7	
SE			11.7
UK	5.3	1.6	
CEECs	0.0	3.3	6.7
EU-15	1.9	1.0	2.2
EU	1.7	1.5	3.9

Source: Eurostat, DG REGIO calculations



Map 1: Population decline in the regions with substantially lower growth in GDP/capita* relative to the national average, 2000 -2007

- Regions facing population decline and substantially lower growth in GDP/capita
- Regions facing substantially lower growth in GDP/capita
- Regions facing population decline
- Regions with stable or growing population and higher growth in GDP/capita
- No Data

CY, MT, LU not Included

Source: DG REGIO calculations, Eurostat, ESPON

*Substantially lower growth in GDP was defined as having a GDP/capita relative to the national which is 5% lower in the EU-15 and 9% lower in the CEECs in 2007 as compared to 2000

0 500Km

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