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Accompanying the document

**REPORT FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE
COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE
COMMITTEE OF THE REGIONS**

**My region, My Europe, Our future:
The seventh report on economic, social and territorial cohesion**

{COM(2017) 583 final}

CHAPTER 1 - ECONOMIC COHESION

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KEY MESSAGES

- After the double dip recession in 2008 and 2011, the EU economy is now growing again, with growth being particularly high in low-income countries.
- The crisis reversed the long-term trend towards a narrowing of regional disparities in GDP per head and employment. However, the first signs of convergence resuming are evident, though in many regions GDP per head and employment remain below their pre-crisis levels.
- GDP per head in the less developed regions is converging towards the EU average through both faster productivity growth and increased employment.
- The regions with high GDP per head have grown faster than the EU average, in part because they have benefited from the agglomeration economies from the national capital or a large city being located there. These benefits can be further extended by improving links between a large city and its rural hinterland or between smaller cities to enable specialised services to be shared and economies of scale to be realised.
- The regions with a GDP per head between 75% and 120% of the EU average seem stuck in a ‘middle-income trap’. Between 2000 and 2015, their GDP per head growth was far below the EU average. Their manufacturing sectors are smaller and weaker than those in regions with a lower or higher GDP per head. Their costs are too high and their innovation systems not strong enough to be competitive at the global level.
- Innovation in the EU remains highly concentrated. In north-western EU countries States, however, good regional connections, a skilled labour force and an attractive business environment have enabled surrounding regions to benefit from proximity to highly innovative ones. In southern and eastern EU countries, the most innovative regions are less strong and, accordingly, other regions close to them enjoy little benefit.

1.1. INTRODUCTION

Regional economic divergence has become a threat to economic progress in the EU (Iammarino et. al., 2017) at a time when globalisation poses new challenges to economic cohesion. While the evidence suggests that the EU economy as a whole has benefited and continues to benefit from globalisation, these benefits are not automatically and evenly transmitted to all European regions (European Union, 2017a).

Cohesion Policy has invested heavily in reducing economic disparities across EU regions. It has co-financed investment in innovation, education and digital and transport networks, so helping to create a single market that boosts growth, productivity and specialisation in areas of comparative advantage in all regions. As such, it strengthens the position of EU enterprises in global markets where they have to compete with both firms from low-cost locations and highly innovative ones.

The crisis has been highly disruptive in many parts of the EU. It has reversed the long-term trend towards a narrowing of regional disparities. It has led to reductions in economic activity and employment in many Member States. However, the first signs of the convergence process resuming can be detected. Nevertheless, many regions still have a GDP per head and employment rate below their pre-crisis level.

Cohesion Policy has made a substantial contribution to economic cohesion. In the years between 2007 and 2014, around 400,000 SMEs received support under cohesion policy and more than 1 million new jobs were directly created. Nevertheless economic disparities still remain, requiring substantial amounts of investment beyond the present programming period if they are to be reduced.

This chapter describes recent trends in economic cohesion in regions and cities in the EU. It covers the differential trends in GDP per head across the EU and in the impact of globalisation as well as the factors underlying regional competitiveness, such as the extent of tertiary education, entrepreneurship, innovation and digital and transport networks. It also presents an aggregate indicator, the Regional Competitiveness Index, intended to summarise the different dimensions of competitiveness of EU regions.

The main concern throughout is to highlight the performance of the less developed regions and of different types of area, cities and rural areas, in particular.

1.2. ECONOMIC TRENDS AMONG EU REGIONS AND MEMBER STATES

1.2.1 Convergence back on track

In 2015, more than one in four EU residents (27%) lived in a NUTS 2 region with a GDP per head, in PPS terms, ¹ below 75% of the EU average (Map 1-1).

Most of them are located in central and eastern EU Member States, Greece, Portugal, Spain, and southern Italy, Portugal. They also include most of the outermost regions² In

¹ Gross Domestic Product (GDP) per head in Purchasing Power Standards is the total value of all goods and services produced per inhabitant. Purchasing Power Standards (PPS) adjusts for differences between countries in purchasing power due to differences in price levels.

Bulgaria and Romania, GDP per head is below 50% of the EU average in all regions, except for the capital city regions of Yugozapaden and Bucureşti-Illfov.

Between 2000 and 2015, GDP per head increased relative to the EU average in all the regions in the central and eastern Member States (Map 1-2). Growth was particularly high over the period in the capital city regions in Romania (from 56% of the EU average to 136%) and Bulgaria (from 38% to 76% of EU average in 2015).

In Greece, the situation deteriorated. In 2008, three of the 13 regions had a GDP per head above 75 % of the EU average, in 2015, just two - the capital city region Attiki (95 %) and Notio Aigaio, the southern Aegean islands (75 %).

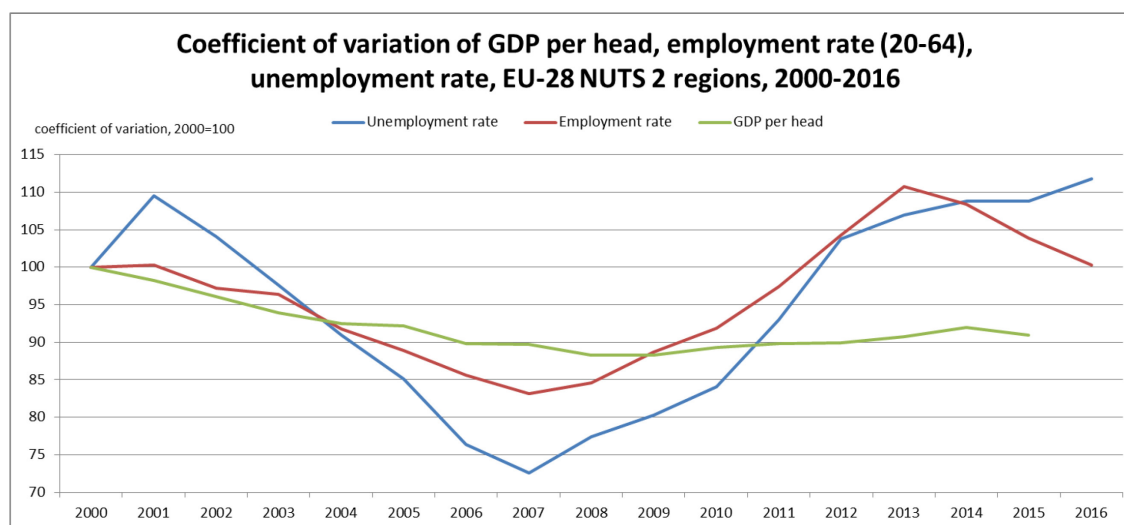
In Portugal, only two regions in 2015 had a GDP per head above the 75% threshold, Lisbon (103 %) and Algarve (79 %), in both substantially lower than in 2008 before the crisis.

There are signs that the long-run process of regional convergence, which was interrupted by the economic crisis, has resumed. Prior to the crisis, disparities in GDP per head in the EU were shrinking (the coefficient of variation falling by 12 % between 2000 and 2008), mainly due to regions with the lowest levels of GDP per head growing faster than average (Figure 1-1). In the crisis years, between 2008 and 2014, however, regional disparities widened slightly (the coefficient of variation increased by 4 % between 2008 and 2014, but remained well below the level in 2000). In 2015, disparities started to narrow again, though it is too early to say if this will be sustained.

Regional disparities in employment rates narrowed from 2013, though this was preceded by a significant increase as the result of the crisis and disparities in 2016 were much wider than in 2008. By contrast, reflecting the increased participation in the labour market, disparities in regional unemployment rates continued to widen, though at a slower pace than before 2012.

² The European Union includes 9 Outermost Regions, which are a long way from the European continent. They are: Guadeloupe and La Réunion, Mayotte, French Guiana and Martinique, Saint-Martin (France); Madeira and Azores (Portugal) and Canary Islands (Spain).

Figure 1-1: Coefficient of variation (index, 2000 = 100), GDP per head in PPS, employment rate, unemployment rate, EU-28 NUTS 2 regions, 2000-2016



Source: Eurostat and DG REGIO calculations.

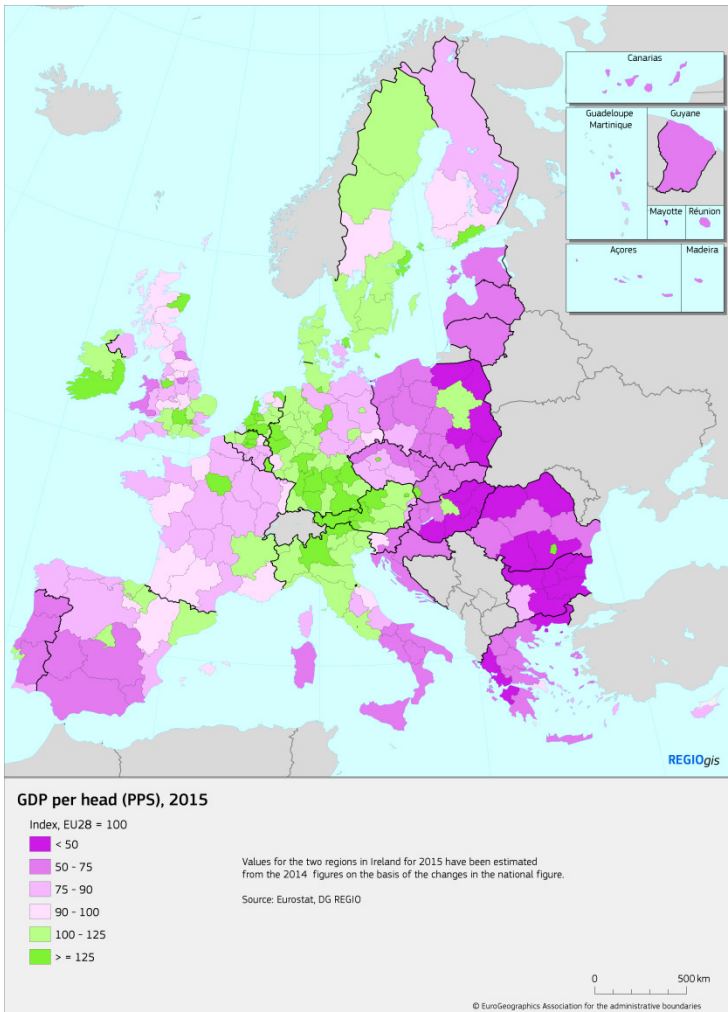
Note: The coefficient of variation is weighted by the total regional population

Between 2000 and 2008, all the regions in the EU13 except Malta converged to the EU average (Map 1-3), with big strides (more than 20 index points) in the capital regions of the Bulgaria, Czech Republic, Hungary, Romania and Slovakia as well as in the Baltic States. Most of the Greek regions converged, while the Italian regions and mainland Portugal diverged.

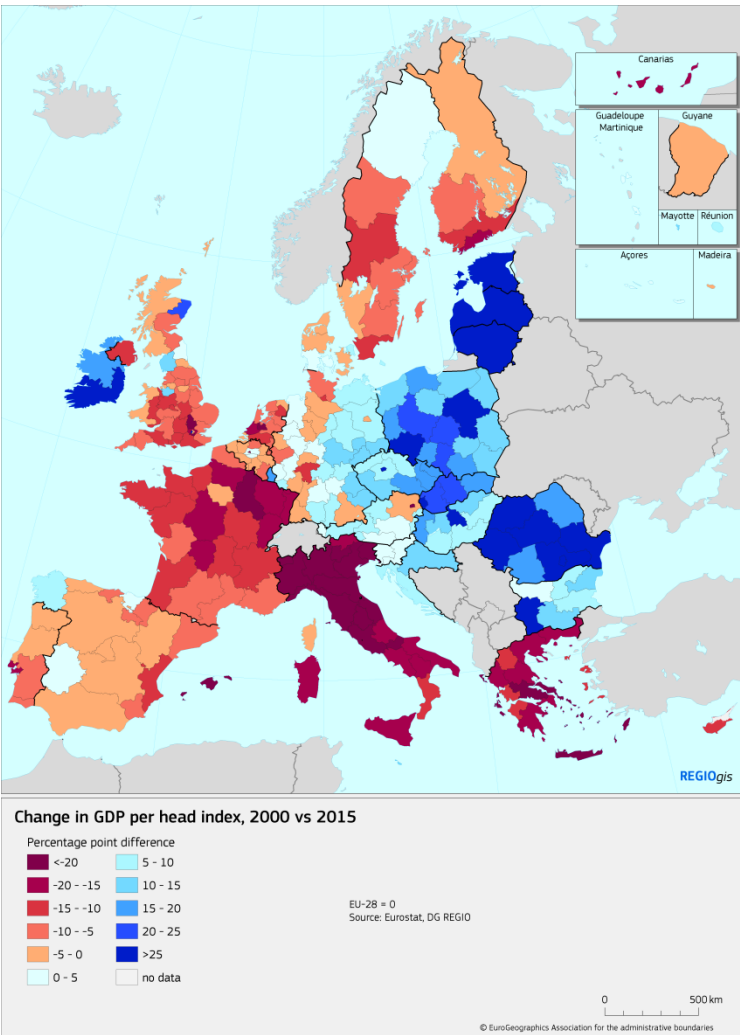
Between 2008 and 2015, all the regions in the EU13 converged except Cyprus and Praha. (Map 1-4). The Baltic States who were hit hard by the crisis still converged. Greek regions experienced big reductions in their GDP per head relative to the EU average, more than reversing the convergence achieved between 2000 and 2008. Almost all Portuguese and Italian regions continued to diverge. Spain was also affected by the crisis and diverged, but not to the same extent as Greece.

Overall, the biggest relative increases in GDP per head between 2000 and 2015 occurred in the EU13, while the biggest reductions were in Greece and Italy, in the latter both before and after the crisis (Map 1-2). But also a few regions in Belgium, the Netherlands, France and the UK also experienced big drops.

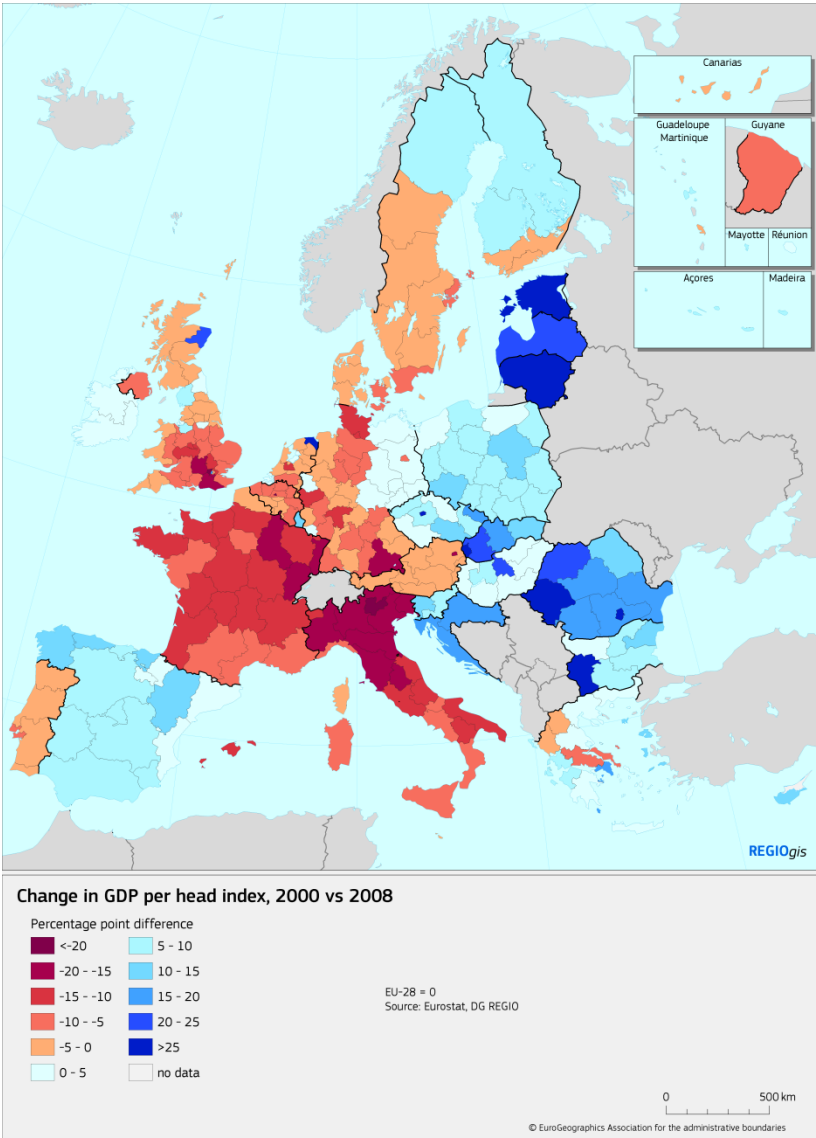
Map 1-1 GDP per head in real terms, 2015



Map 1-2 Change in GDP per head index, 2000 vs 2015



Map 1-3 Change in GDP per head index, 2000 vs 2008



Note: Annual average change on previous year, in %

Map 1-4 Change in GDP per head index, 2008 vs 2015

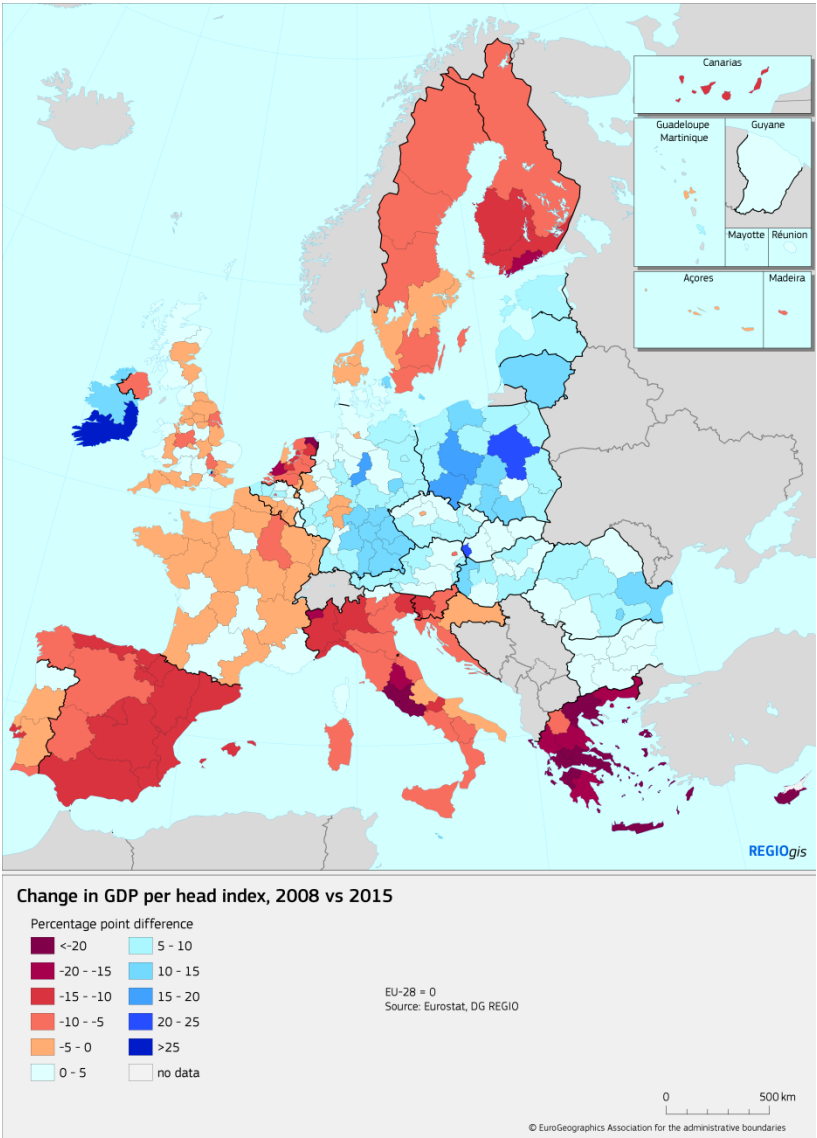


Figure 1-2: GDP per head growth rates of regions in less developed and moderately developed Member States, 2001-2008

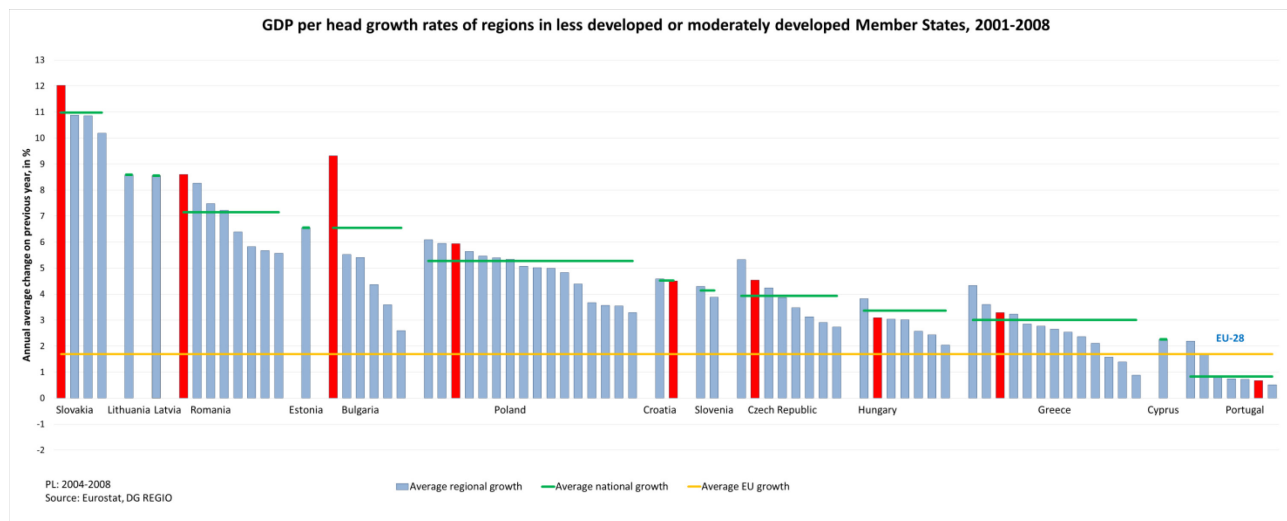
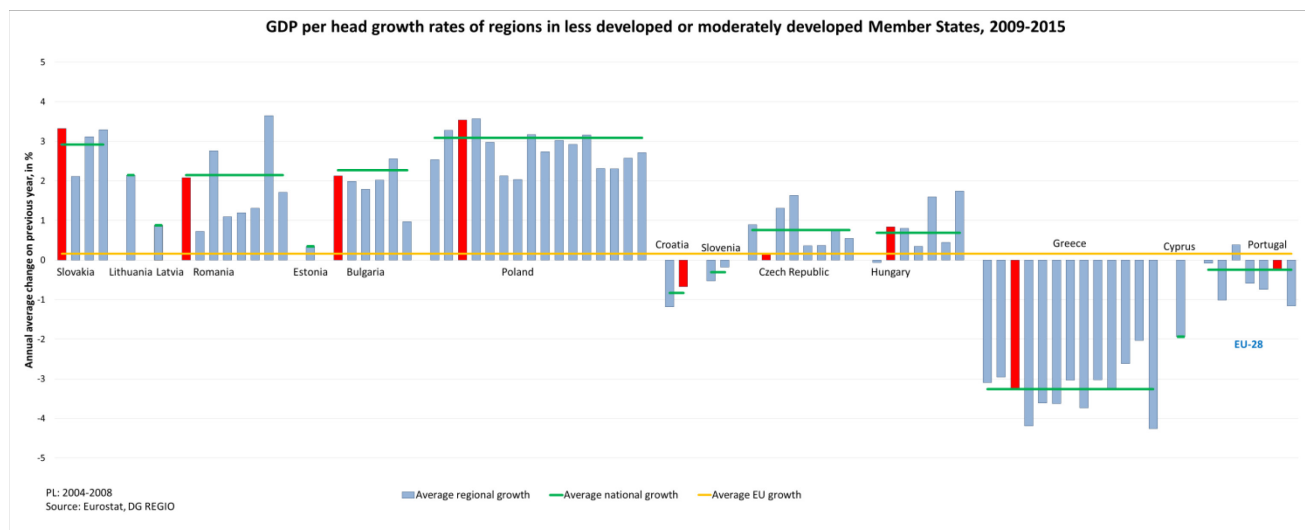


Figure 1-3: GDP per head growth rates of regions in less developed and moderately developed Member States, 2009-2015



Note: capital regions are indicated in red. Regions are ranked by growth rates for the period 2001-2008 in both figures

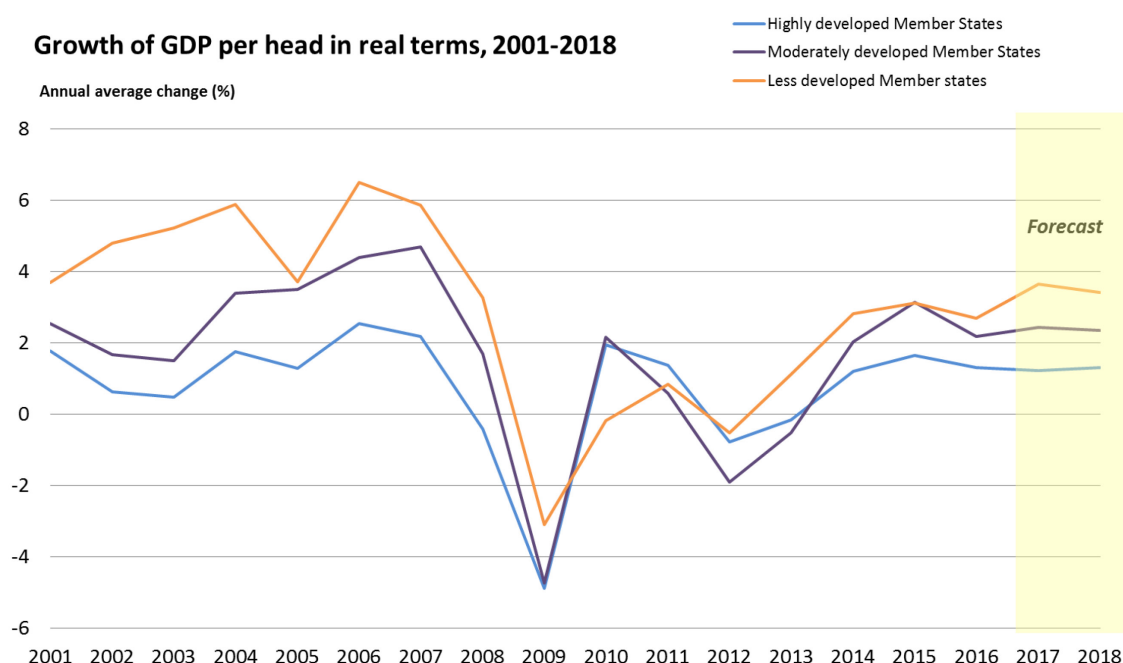
Mainstream economic growth theories predict that the lower the initial GDP per head the higher growth will be. Indeed, growth was higher than average in both the less developed and transition regions (located mostly in less developed and moderately developed Member States³ Figure 1-2), with GDP per head in regions in less developed and moderately developed Member States growing at a faster pace than the EU average.

The economic and financial crisis led to a reduction in GDP per head between 2009 and 2015 in around 40% of regions, located mainly in Ireland, Italy, Spain, Portugal and Greece; in most Greek regions, the reduction amounting to over 3% a year. The process of convergence was halted with several of the less developed and transition regions growing more slowly than the EU average (Figure 1-3).

From 2000 onwards convergence was mainly driven by the catching up of the less developed economies. GDP per head, therefore, grew faster in real terms in the less developed Member States than in others over the period 2001-2016, except in 2010 and 2011, and it is forecast to continue to do so in 2017 and 2018 (Figure 1-4).

From 2011 to 2013 the average growth rate in the moderately developed Member States was below that in the highly developed Member States, i.e. diverging. Only in 2014 did it overtake the rate in the highly developed Member States and growth in their GDP per head is forecast to be around 2.5% in both 2017 and 2018 (as against 3.5% in less developed Member States).

Figure 1-4: Growth of GDP per head in real terms, 2001-2018



Source: Eurostat, DG ECFIN, DG REGIO calculations

³ See the Lexicon section for the list of less developed and moderately developed Member States.

EU outermost regions

The European Union includes 9 outermost regions, which are geographically remote from the continent and located in the Caribbean basin, in the Macaronesia area and in the Indian Ocean. They are European lands in the world governed by the provisions of the Treaties and they form an integral part of the Union.

Around 5 million people live in the outermost regions. Some of them experience a significant population growth due to inward migration. Population is for most of these regions much younger than their mainland.

The outermost regions have a level of GDP per inhabitant below the European average. Mayotte, with a population of around 213 000 inhabitants barely reaches one quarter of the EU average. They are facing a high unemployment rate, higher than in their mainland. This rate is particularly significant among young people (aged 15-24) with percentages of about 51 % for the Canary Islands, 55 % for Mayotte or 47% for Guadeloupe.

The outermost regions present many assets for the EU in the fields of biodiversity, climate change adaptation and mitigation, green growth and the circular economy and they are active in research fields such as energy, marine science and space. However due to their remoteness, their difficult topography and climate, their small markets related to a small number of products and the insularity of 8 of them, Article 349 of the Treaty on the Functioning of the European Union recognizes the particular situation of these regions and gives them a unique status. This status distinguishes the outermost regions from any other region in the EU and from the Overseas Countries and Territories that are associated to the Union.

In the autumn 2017 the Commission will adopt a new strategy for the outermost regions inspired by the work of the 4th Forum of the Outermost Regions held in March 2017 and by the proposals submitted by these regions, the concerned Member States and the European Parliament

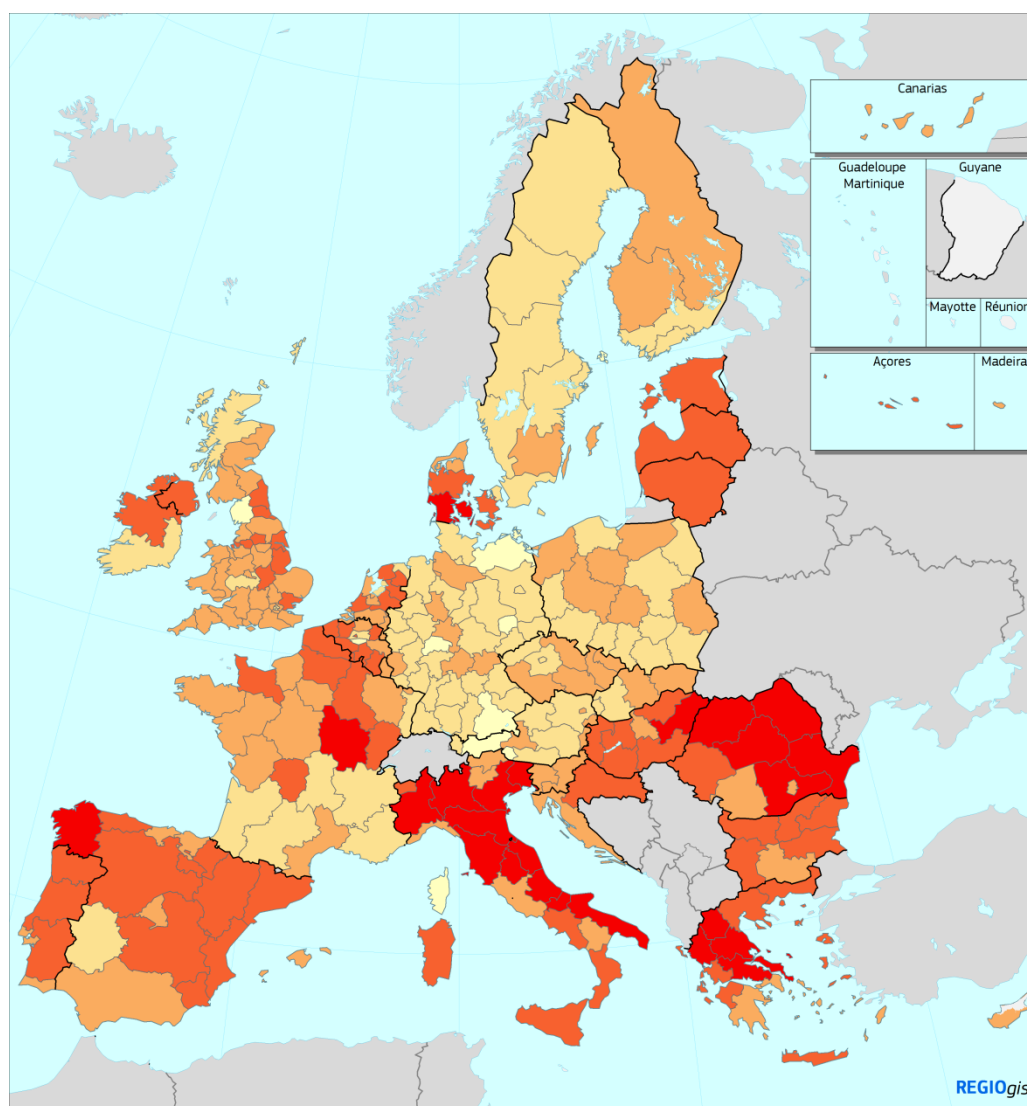
According to a European Commission reflection paper (European Union, 2017a), globalisation has a highly differentiated impact on EU regions. While some are well positioned to take advantage of the new opportunities it offers, others are hit by job losses, stagnating wages and shrinking market shares due to low-cost competitors moving into more technologically advanced sectors.

The best response to globalisation is a continuous effort to move up the value chain. This requires innovation, entrepreneurship, knowledge transfer and continuous upgrading of the skills of the labour force. Regions that are innovative and have a large share of high-skilled jobs and a highly educated work force are less likely to be hit hard by heavy job losses than others.

There are four important risk factors linked to globalisation and technological change: (1) a large share of employment in low-tech manufacturing, (2) rapidly increasing unit labour costs in manufacturing over the past decade which may compromise competitiveness and reduce market share, (3) a large share of working-age population

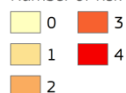
with low educational attainment, and (4) a decline in employment in industry between 2000 and 2013 (Map 1-5). Some 9% of EU regions, located in 7 different Member States, are at risk from globalisation by being exposed to up to four of these factors. Most are located in southern or central and eastern Europe, though there are also high risk regions in Denmark, France, Ireland and the UK. In many Member States, the situation is diverse with some regions being subject to three or four risks and others only one or none at all. These risks may diminish over time, though probably only slowly since changes in innovation or education attainment levels take time to be accomplished.

Map 1-5: Risks factors linked to globalisation and technological change



Risk factors linked to globalisation and technological change

Number of risk factors out of 4 (see footnote)



A risk factor is defined as a negative value for the first indicator and a value above the EU regions average for the next indicators:

- Employment growth in the industry between 2000 and 2014
- Share in employment of low-technology manufacturing, 2016
- Share of people between 25 and 64 with a low educational attainment, 2016
- Change in manufacturing ULC between 2003 and 2014

Source: Eurostat, own calculations

0 500 km

© EuroGeographics Association for the administrative boundaries

Determinants of GDP growth across NUTS 3 regions

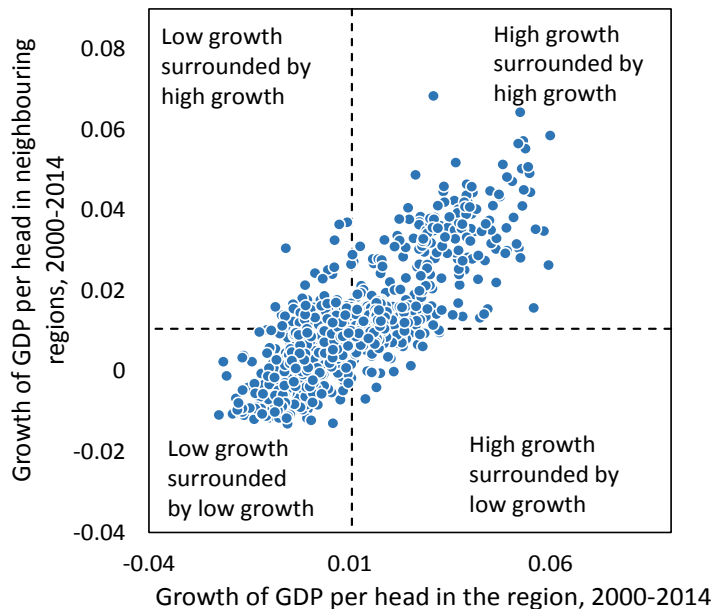
Source: Lavalle et al. (2017)

According to mainstream economics, initial socio-economic conditions are major determinants of growth of GDP per head in a given period. This relationship is examined below for the years 2000-2014. For more details on this analysis see Lavalle *et. al* (2017).

Determinants of GDP growth and the role of spatial spill-overs

Spatial spill-overs are the effect of economic growth in one region on growth in neighbouring ones. This can be positive, so that growth in regions close to each other is self-reinforcing, or negative, so that a region grows at the expense of surrounding ones. Figure B1 shows that regions in the EU with high growth rates are predominantly surrounded by other high-growth regions, in that there is a relative concentration of such regions in the top right quadrant (and relatively few in the bottom right quadrant). At the same time, regions with low growth are mostly surrounded by other low-growth ones, in that most of them are in the bottom-left quadrant rather than the top left

Spatial spill-overs of regional growth rates in the EU, 2000-2014



The relationship between regional growth and initial conditions is examined on the basis of a spatial lag model, which assumes that economic growth in a region is determined by the average growth in surrounding ones together with a set of additional factors which explain differences in growth between regions. Formally, the model is defined as:

$$Y = \rho WY + X\beta + u$$

Determinants of GDP growth across NUTS 3 regions: continued

where Y is the growth rate of GDP per head, X is a set of regional-specific features and W is a matrix describing the spatial link between regions. Specially, two regions are considered neighbours if they are within 150 minutes of travel time by road (based on the JRC-Trans Tools model).

Estimation results ('+' is a positive impact; '-' is a negative impact)

Dependent variable: growth of GDP per head 2000-2014

<i>Variable</i>	<i>Direct Effect</i>	<i>Indirect effect</i>	<i>Direct effect</i>	<i>Indirect effect</i>
Initial GDP per head in 2000 ₂ (log)	-	-	-	-
Share of population aged 25-64 with upper secondary education in 2000	+	+	+	+
Share of population aged 25-64 with tertiary education in 2000 _t	+	+	+	+
Agglomeration ₂₀₀₀	+	+	+	+
Share of employment in tradable sectors in 2000	+	+		
Share of employment in non-tradable sectors in 2000			-	-
GDP per capita growth in neighbouring regions	+		+	
R ²	0.80		0.80	

Note: all the coefficients are statistically different from zero at the 1%, 5% or 10% level. The share of employment in tradable and non-tradable sectors cannot be included in the same regression because they sum to 1.

The *direct effect* measures the impact of the explanatory variables on the region itself, the *indirect effect*, the impact of the explanatory variables in neighbouring regions on the region, which, accordingly, captures spatial spill-over effects.

The main results can be summarised as follows:

Spatial spill-overs between regions are of major importance. Around half of the growth in a region over the period is explained by growth occurring in neighbouring ones.

Less developed economies are catching-up. GDP per head in the initial year has a negative impact, implying that less developed regions tended to grow faster than more developed ones and will eventually catch up with the more developed ones.

Upper secondary and tertiary education are strong drivers of growth. Highly-educated people can move or commute to neighbouring regions or work in companies that are linked to others in these regions, so increasing their growth.

Agglomeration economies are confirmed as a driver of economic growth. Agglomeration means economies of scale, higher probability of innovation and concentration of high level services that are fundamental for growth. In addition, agglomeration produces a direct and an indirect effect on growth due to greater interaction between firms as well as people.

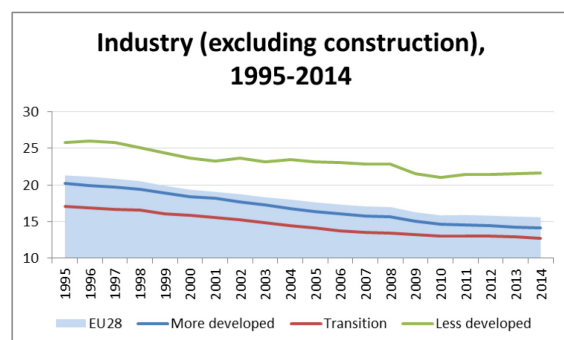
Tradable sectors have a positive impact on economic growth. In this case the channels of the indirect effect might be related to commuting or subcontracting relationships.

1.2.2 Less developed regions maintain a strong manufacturing sector, but their agriculture needs to modernise

In 1995, industry, excluding construction (i.e. mainly manufacturing), accounted for around 21% of both total employment and gross value-added (GVA) in the EU. The rise of services, automation in manufacturing and the relocation of parts of it to emerging economies has led to a steady reduction in both shares since then, to 19% in the case of GVA and 16% in the case of employment (Figure 1-5 and Figure 1-6).

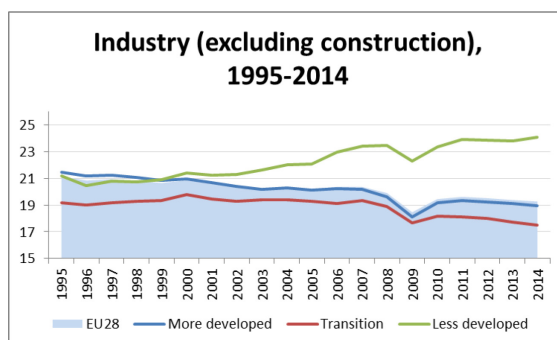
In less developed regions, the share of both GVA and employment in industry is, on average, larger than in the more developed and transition ones⁴. Moreover, the share of GVA increased over the period (from 21% to 24%) while the share of employment declined - though by less than in other regions –implying an increase in productivity in industry relative to other sectors.

Figure 1-5 Employment shares in industry (excluding construction), 1995-2014



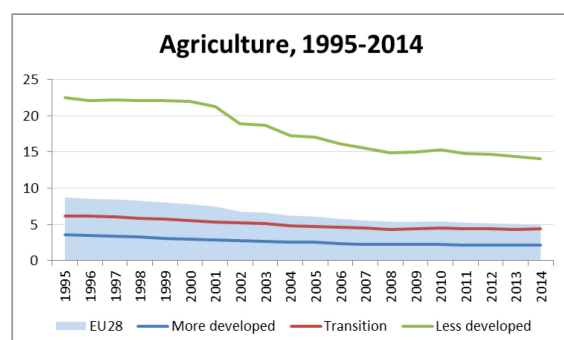
Source: Cambridge Econometrics, DG REGIO calculations

Figure 1-6 GVA shares in industry (excluding construction, 1995-2014)



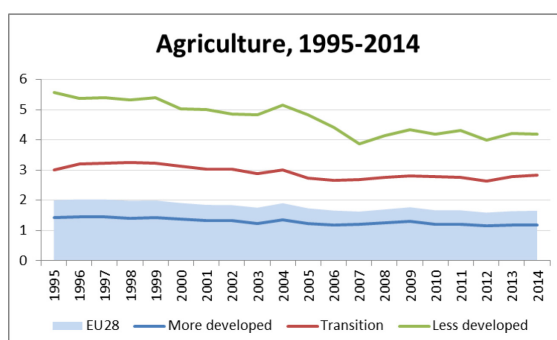
Source: Cambridge Econometrics, DG REGIO calculations

Figure 1-7 Employment shares in agriculture, 1995-2014



Source: Cambridge Econometrics, DG REGIO calculations

Figure 1-8 GVA shares in agriculture, 1995-2014



Source: Cambridge Econometrics, DG REGIO calculations

The reduction in the share of employment in agriculture in the EU over the 20 year-period has been substantial, especially in less developed regions. In 1995, it accounted

⁴ See Lexicon for a definition of ‘less developed’, ‘transition’ and ‘more developed’ regions.

for around 9% of total employment and by 2012, the share had fallen to 5% when, because of low productivity – partly reflecting subsistence farming in EU-13 countries – the share of GVA was under 2% (Figure 1-7 and Figure 1-8). In less developed regions, the share fell from 22% to 14% between 1995 and 2014 and as productivity increases, it is likely that it will fall further.

The EU Common Agricultural Policy and the LEADER approach

The EU Common Agricultural Policy (CAP) is concerned with matters of high societal value in relation to agriculture and rural areas. About half of the EU's territory is farmed and the primary agricultural sector accounts for 5% of total employment, with 11 million farms providing work for roughly 22 million people. Together with food processing, food retail and food services, agriculture provides nearly 44 million jobs. The CAP contributes to smart, sustainable and inclusive growth in the EU through a range of policy measures which provide support to agriculture, food and forestry as well as to others operating in rural areas such as non-agricultural businesses, NGOs and local authorities.

The CAP is aimed at improving the economic viability and sustainability of farming and rural businesses through support to knowledge transfer and innovation, investment in green technologies, training, entrepreneurship and networking as well as access to essential services and the social inclusion of migrants and Roma. It also ensures, a basic level of income support to farmers and helps them run their businesses in a sustainable way by fostering the preservation of natural resources and environmentally sustainable land management.

The CAP is composed of two strands, financed, by the European Agricultural Guarantee Fund (EAGF) and the European Agricultural Fund for Rural Development (EAFRD), the two amounting to EUR 408.3 billion in the 2014-2020 period.

Rural development policy is part of the Common Strategic Framework (CSF) for Cohesion Policy 2014-2020. Its objective is to enhance the economic resilience of the farm sector and non-agricultural businesses by supporting investment, knowledge-building and various forms of co-operation and innovation in the rural areas. Rural development also ensures payments to farmers who commit themselves to providing public goods through environment and climate-related activities going beyond mandatory requirements.

In the 2014 - 2020 programming period, rural development plays an important role in making rural areas a better place to live and work, and in promoting a more inclusive society. A wide range of measures contributes to EU cohesion objectives, including operations facilitating diversification of enterprises and the creation of new ones as well as of jobs, improving access to ICT and fostering local development.

Rural development policy provides the means of stimulating employment both in agriculture and outside. Investment support helps to improve the economic viability and resilience of farming and rural businesses. For the programming period 2014-2020, some 365 000 farmers are due to receive investment aid to restructure and modernise their farms and a total of EUR 22.6 billion from the EAFRD is earmarked for productive investment in the rural economy, EUR 6.9 billion is planned to be spent to help over 173 000 young farmers to set up business

LEADER is a local development programme which for 20 years has involved local communities in the design and implementation of policies and resource allocation for the development of rural areas. For the 2014-2020 period almost EUR 6.9 billion (7% of the EAFRD) has been allocated to the programme. LEADER operates through Local Action Groups (LAGs) which are intended to be inclusive and outward looking in order to involve both key stakeholders in the area and marginalised groups. In 2014-2020, 2,536 LAGs will be set up across the EU with the aim of implementing local development strategies which, among other outcomes, are expected to create 46,000 new jobs.

As the number of jobs in less productive segments of agriculture and industry declines, more jobs may be created in services and more advanced areas of industry and agriculture. Regions can indeed choose not to abandon agriculture and industry. Within global value chains, economies can increase their productivity by upgrading to higher value segments within the same sector (Sheperd, 2013). In addition, automation has made labour costs less relevant and may bring back some manufacturing firms to the EU, but the jobs they will offer will be different from those that were moved away in past years (European Union, 2017, OECD, 2016 and Eurofound, 2016). Training may help workers losing their jobs to gain new ones as the structure of economic activity shifts, but there is a limit to what it can achieve.

1.3. PRODUCTIVITY IN LESS DEVELOPED MEMBER STATES IS CATCHING-UP

Less developed Member States tend to have a different economic structure than the others, with more employment in agriculture and industry (Table 1-1).⁵ In 2016, the share of employment in agriculture was 11 percentage points higher in less developed Member States than in highly developed Member States (13% vs 2%). In 2016, the share of their employment in industry was around 21% (i.e. the same as in less developed regions), and 7 percentage points larger than in highly developed Member States (14% as in more developed regions).

Both agriculture and industry lost employment between 2001 and 2008 and between 2009 and 2016. The pattern for agriculture was the same: the less developed Member States had the fastest reduction in agricultural employment, followed by the moderately developed, with the slowest reduction in the highly developed Member States. GVA in agriculture on the other hand grew fastest in the less developed Member States between 2001 and 2008, but it did not grow at all between 2009 and 2016.

Industrial employment remained constant in the less developed MS between 2001 and 2008, while it shrank in the other groups of Member States. Joining the EU and the single market has created more potential for specialisation in higher value-added sectors, so less developed Member States may have been able to maintain a larger share of employment in industry because the balance between labour costs, productivity and accessibility represented an attractive location for manufacturers. Industrial GVA in less developed Member States grew three times faster than in highly developed Member States between 2001 and 2008 and four times faster between 2009 and 2016.

⁵ This section analyses data at the country level because of the unavailability of regional data on sectoral employment for 2015 and 2016 and partly for 2014.

Employment and GVA in construction grew quickly, especially in the less developed countries in the run up to the crisis and fell sharply between 2009 and 2016 in all three country groups.

Over the period 2001-2008, GVA in industry in these countries increased by more than in other sectors, by much the same as in the business and financial sector (K-N). It increased even over the crisis years, 2009 to 2013, whereas it declined in both moderately developed and highly developed Member States.

By contrast, shares of employment and GVA in business and financial sector in the less developed Member States, which used to be small, increased towards those in the highly developed countries. The impact of the crisis was limited, both employment and GVA continuing to grow after 2008 but at slower rates than between 2000 and 2008.

The restructuring and modernisation of agriculture is still ongoing in the less developed Member States. In 2016, it accounted for 13% of employment – as against only 2% in the highly developed Member States – but for only 3.5% of GVA. Both shares are tending to decline as restructuring takes place and, along with the shares in moderately developing countries, are converging towards those in highly developed countries.⁶

⁶ However, in some Member States agriculture has a social function as it absorbs labour in times of crises. Of course, this social cushioning muddles the real productivity figures of the sector.

The European Maritime and Fisheries Fund

The European Maritime and Fisheries Fund (EMFF), which has a budget of EUR 6.4 billion budget for the period 2014-2020, underpins the new Common Fisheries Policy and supports the diversification of local maritime economies and their sustainable development.

Due to the specific scope of the EMFF, support is concentrated in coastal areas and major freshwater sites.

The ex-post evaluation of the 2007-2013 programmes indicates the following main achievements:

- EFF support amounted to around 20% of EU fleet investment over the programming period and strengthened competitiveness by removing unprofitable vessels and by helping to modernise the remaining fleet and landing sites.
- Investment in the aquaculture sector was supported during the financial crisis, so helping to slow down (or reverse in some Member States) a downward trend in employment in the sector.
- EFF financing helped to maintain the competitiveness of the fish processing industry through around 8 000 operations across the EU involving some 2 700 beneficiaries.
- Support led to the creation of around 17 000 new jobs (10 000 in marketing and processing) over the period and the maintenance of many more. It also helped to improve the quality of jobs and working conditions through investment in safety equipment as well as in aquaculture, processing, and fishing ports.

Table 1-1 Change in employment and GVA by NACE sector by group of Member States, shares in 2016 and changes 2000-2016

	Employment				GVA			
	Less developed	Moderately developed	Highly developed	EU-28	Less developed	Moderately developed	Highly developed	EU-28
Share in 2016 (%)								
A: Agriculture, forestry and fishing	13.3	5.6	2.4	4.5	3.5	2.5	1.3	1.5
B-E: Industry (except construction)	20.6	23.0	13.5	15.3	23.0	24.6	18.8	19.3
F: Construction	6.8	7.0	6.2	6.3	6.0	5.3	5.0	5.1
G-J: Wholesale and retail trade; et al.	26.8	27.4	27.9	27.7	27.7	26.1	24.5	24.8
K-N: Financial and insurance activities; et al.	9.6	13.2	18.2	16.4	21.8	22.0	27.9	27.2
O-U: Public administration; et al.	22.9	23.7	31.9	29.7	18.0	19.5	22.6	22.1
Total	100	100	100	100	100	100	100	100
Annual average % change 2001-2008								
A: Agriculture, forestry and fishing	-4.9	-2.2	-1.6	-3.6	1.2	0.9	0.6	0.7
B-E: Industry (except construction)	0.1	-0.6	-1.0	-0.7	4.8	5.1	1.2	1.5
F: Construction	5.9	0.5	1.5	2.1	4.8	1.6	1.0	1.3
G-J: Wholesale and retail trade; et al.	2.3	1.9	1.2	1.4	5.1	3.4	2.5	2.8
K-N: Financial and insurance activities; et al.	3.9	2.8	2.8	2.9	4.9	3.2	2.3	2.6
O-U: Public administration; et al.	1.0	1.0	1.4	1.3	2.4	1.4	1.4	1.4
Total	0.4	0.7	1.1	0.9	4.4	3.3	1.9	2.1
Annual average % change 2009-2016								
A: Agriculture, forestry and fishing	-3.1	-2.4	-0.8	-2.1	0.0	1.9	-0.4	-0.1
B-E: Industry (except construction)	-1.3	-0.7	-1.2	-1.2	1.6	0.9	0.3	0.4
F: Construction	-2.7	-3.5	-2.1	-2.3	-1.7	-4.0	-1.9	-1.9
G-J: Wholesale and retail trade; et al.	0.2	0.2	0.3	0.3	0.5	0.8	1.0	1.0
K-N: Financial and insurance activities; et al.	2.2	1.3	1.2	1.3	1.5	0.8	0.9	0.9
O-U: Public administration; et al.	0.6	0.3	0.8	0.8	-0.4	0.1	0.7	0.7
Total	-0.5	-0.3	0.2	0.0	0.6	0.4	0.6	0.6

Source: Eurostat

Note: blue bars indicate positive changes, red bars indicate negative changes. Annual average change on previous year, in %

Note: Less developed: BG, EL, EE, HR, LV, LT, HU, PL, RO; Moderately developed: CZ, CY, PT, SK, SI; Highly developed: BE, DK, IE, ES, FR, DE, IT, LU, MT, NL, AT, FI, SE, UK.

1.3.1 Productivity and employment contribute to the economic recovery in the EU

In the years before the crisis, from 2001 to 2008, GVA per head in the EU grew by 1.7% a year in real terms, fuelled primarily by productivity growth of 1.2% a year, with increases in the employment rate adding another 0.6% a year (Table 1-2). Productivity growth was also the main source of growth in GVA per head in less developed Member States, though both were substantially higher than the EU average, especially productivity growth (4% a year).

Between 2009 and 2016, GVA per head in the EU grew slightly (by 0.3% a year) productivity grew faster (by 0.6% a year) and the employment rate by less (0.2% a year, while the share of working-age population declined (by 0.4% a year) as opposed to it remaining unchanged as it did between 2001 and 2008. The number of Member States with a declining share of working-age population increased markedly between the two periods, from 8 to 27, Luxembourg being the only exception.

Over the 2009-2016 period, the less developed Member States had the highest growth in GVA per head (0.9% a year) mainly driven by an increase in productivity (1.2% a year) with only a slight increase in the employment rate (0.1% a year) but offset by a reduction in the share of working-age population (0.4% a year). The moderately and highly developed Member States followed a similar pattern, but with lower growth in GVA per head (0.4% and 0.2% a year, respectively) and productivity (0.7% and 0.4% a year).

Decomposing growth in GVA per head

Growth in GVA per head can be broken down into three main components: changes in productivity (GVA per person employed), changes in the employment rate (employment relative to population of working age) and changes in the share of working age population in the total population. Accordingly, the following identity holds:

$$\frac{GVA}{Total\ population} = \frac{GVA}{Employment} \times \frac{Employment}{Working\ age\ population} \times \frac{Working\ age\ population}{Total\ population}$$

The same identity can be expressed in terms of changes: The change in GVA per head is the sum of the changes in productivity, in the employment rate and in the share of working age population.

Between 2009 and 2016, GVA per head grew in all of the less developed Member States except Greece (where it fell by 3.2% a year) and Croatia (by 0.7% a year). Productivity growth was relatively high (between 1.4% and 2.8%) in five of the nine countries, but employment rates either fell or increased only slightly, except in Lithuania and Hungary.

Among the five moderately developed countries, GVA per head declined in Cyprus (by 1.8% a year), Portugal (by 0.2% a year) and Slovenia (by 0.3% a year) mainly due to a fall in employment rates.

Among the highly developed countries, only Italy and Finland had a decline in GVA per head (1% a year) between 2009 and 2016. Both experienced a reduction in productivity and the employment rate fell as well in Italy.

Table 1-2: Decomposition of annual average change in GVA per head by Member State, 2001-2008 and 2009-2016

2001-2008						2009-2016					
Average annual change (%)	GVA per head	Productivity	Employment rate	Share of working-age population			GVA per head	Productivity	Employment rate	Share of working-age population	
EU-28	<div><div></div></div> 1.7	<div><div></div></div> 1.2	<div><div></div></div> 0.6	<div><div></div></div> 0.0		EU-28	<div><div></div></div> 0.3	<div><div></div></div> 0.6	<div><div></div></div> 0.2	<div><div></div></div> -0.4	
Less Developed	<div><div></div></div> 4.8	<div><div></div></div> 4.0	<div><div></div></div> 0.5	<div><div></div></div> 0.3		Less Developed	<div><div></div></div> 0.9	<div><div></div></div> 1.2	<div><div></div></div> 0.1	<div><div></div></div> -0.4	
Greece	<div><div></div></div> 3.0	<div><div></div></div> 1.8	<div><div></div></div> 1.4	<div><div></div></div> -0.2		Greece	<div><div></div></div> -3.2	<div><div></div></div> -1.3	<div><div></div></div> -1.4	<div><div></div></div> -0.4	
Hungary	<div><div></div></div> 3.5	<div><div></div></div> 3.7	<div><div></div></div> -0.3	<div><div></div></div> 0.1		Hungary	<div><div></div></div> 1.1	<div><div></div></div> -0.1	<div><div></div></div> 1.4	<div><div></div></div> -0.3	
Poland	<div><div></div></div> 4.1	<div><div></div></div> 3.1	<div><div></div></div> 0.5	<div><div></div></div> 0.5		Poland	<div><div></div></div> 2.9	<div><div></div></div> 2.8	<div><div></div></div> 0.7	<div><div></div></div> -0.5	
Croatia	<div><div></div></div> 4.7	<div><div></div></div> 2.7	<div><div></div></div> 1.6	<div><div></div></div> 0.3		Croatia	<div><div></div></div> -0.7	<div><div></div></div> 0.2	<div><div></div></div> -0.9	<div><div></div></div> 0.0	
Estonia	<div><div></div></div> 6.5	<div><div></div></div> 4.7	<div><div></div></div> 1.7	<div><div></div></div> 0.1		Estonia	<div><div></div></div> 0.7	<div><div></div></div> 0.8	<div><div></div></div> 0.4	<div><div></div></div> -0.5	
Bulgaria	<div><div></div></div> 7.1	<div><div></div></div> 3.8	<div><div></div></div> 3.0	<div><div></div></div> 0.2		Bulgaria	<div><div></div></div> 1.8	<div><div></div></div> 2.4	<div><div></div></div> 0.1	<div><div></div></div> -0.7	
Romania	<div><div></div></div> 7.7	<div><div></div></div> 8.4	<div><div></div></div> -0.7	<div><div></div></div> 0.0		Romania	<div><div></div></div> 1.6	<div><div></div></div> 2.4	<div><div></div></div> -0.5	<div><div></div></div> -0.3	
Latvia	<div><div></div></div> 8.5	<div><div></div></div> 5.6	<div><div></div></div> 2.5	<div><div></div></div> 0.2		Latvia	<div><div></div></div> 1.3	<div><div></div></div> 2.1	<div><div></div></div> -0.2	<div><div></div></div> -0.6	
Lithuania	<div><div></div></div> 8.6	<div><div></div></div> 7.1	<div><div></div></div> 1.1	<div><div></div></div> 0.3		Lithuania	<div><div></div></div> 2.2	<div><div></div></div> 1.4	<div><div></div></div> 1.0	<div><div></div></div> -0.2	
Moderately developed	<div><div></div></div> 3.0	<div><div></div></div> 2.5	<div><div></div></div> 0.4	<div><div></div></div> 0.1		Moderately developed	<div><div></div></div> 0.4	<div><div></div></div> 0.7	<div><div></div></div> 0.1	<div><div></div></div> -0.5	
Portugal	<div><div></div></div> 0.8	<div><div></div></div> 1.1	<div><div></div></div> -0.1	<div><div></div></div> -0.1		Portugal	<div><div></div></div> -0.2	<div><div></div></div> 0.7	<div><div></div></div> -0.6	<div><div></div></div> -0.3	
Cyprus	<div><div></div></div> 2.3	<div><div></div></div> 0.7	<div><div></div></div> 1.0	<div><div></div></div> 0.5		Cyprus	<div><div></div></div> -1.8	<div><div></div></div> -0.1	<div><div></div></div> -1.7	<div><div></div></div> -0.1	
Slovenia	<div><div></div></div> 4.1	<div><div></div></div> 3.2	<div><div></div></div> 1.0	<div><div></div></div> -0.1		Slovenia	<div><div></div></div> -0.3	<div><div></div></div> 0.4	<div><div></div></div> -0.3	<div><div></div></div> -0.5	
Czech Rep.	<div><div></div></div> 4.3	<div><div></div></div> 3.6	<div><div></div></div> 0.5	<div><div></div></div> 0.2		Czech Rep.	<div><div></div></div> 0.7	<div><div></div></div> 0.7	<div><div></div></div> 0.8	<div><div></div></div> -0.8	
Slovakia	<div><div></div></div> 6.3	<div><div></div></div> 5.0	<div><div></div></div> 0.8	<div><div></div></div> 0.5		Slovakia	<div><div></div></div> 1.7	<div><div></div></div> 1.4	<div><div></div></div> 0.6	<div><div></div></div> -0.3	
Highly developed	<div><div></div></div> 1.3	<div><div></div></div> 0.8	<div><div></div></div> 0.6	<div><div></div></div> -0.1		Highly developed	<div><div></div></div> 0.2	<div><div></div></div> 0.4	<div><div></div></div> 0.1	<div><div></div></div> -0.3	
Italy	<div><div></div></div> 0.4	<div><div></div></div> -0.3	<div><div></div></div> 1.2	<div><div></div></div> -0.5		Italy	<div><div></div></div> -1.0	<div><div></div></div> -0.5	<div><div></div></div> -0.4	<div><div></div></div> -0.1	
Denmark	<div><div></div></div> 0.8	<div><div></div></div> 0.3	<div><div></div></div> 0.7	<div><div></div></div> -0.2		Denmark	<div><div></div></div> 0.0	<div><div></div></div> 0.8	<div><div></div></div> -0.5	<div><div></div></div> -0.3	
France	<div><div></div></div> 1.0	<div><div></div></div> 1.0	<div><div></div></div> 0.0	<div><div></div></div> 0.0		France	<div><div></div></div> 0.2	<div><div></div></div> 0.4	<div><div></div></div> 0.1	<div><div></div></div> -0.4	
Belgium	<div><div></div></div> 1.5	<div><div></div></div> 1.0	<div><div></div></div> 0.4	<div><div></div></div> 0.0		Belgium	<div><div></div></div> 0.2	<div><div></div></div> 0.2	<div><div></div></div> 0.1	<div><div></div></div> -0.2	
Netherlands	<div><div></div></div> 1.6	<div><div></div></div> 1.0	<div><div></div></div> 0.7	<div><div></div></div> -0.1		Netherlands	<div><div></div></div> 0.2	<div><div></div></div> 0.6	<div><div></div></div> -0.1	<div><div></div></div> -0.4	
Spain	<div><div></div></div> 1.6	<div><div></div></div> 0.1	<div><div></div></div> 1.5	<div><div></div></div> 0.0		Spain	<div><div></div></div> -0.3	<div><div></div></div> 1.3	<div><div></div></div> -1.2	<div><div></div></div> -0.4	
UK	<div><div></div></div> 1.7	<div><div></div></div> 1.3	<div><div></div></div> 0.1	<div><div></div></div> 0.2		UK	<div><div></div></div> 0.4	<div><div></div></div> 0.2	<div><div></div></div> 0.5	<div><div></div></div> -0.4	
Germany	<div><div></div></div> 1.7	<div><div></div></div> 1.3	<div><div></div></div> 0.6	<div><div></div></div> -0.2		Germany	<div><div></div></div> 0.6	<div><div></div></div> 0.1	<div><div></div></div> 0.9	<div><div></div></div> -0.4	
Austria	<div><div></div></div> 1.8	<div><div></div></div> 1.2	<div><div></div></div> 0.6	<div><div></div></div> 0.0		Austria	<div><div></div></div> -0.1	<div><div></div></div> -0.2	<div><div></div></div> 0.3	<div><div></div></div> -0.1	
Malta	<div><div></div></div> 1.8	<div><div></div></div> 1.2	<div><div></div></div> -0.1	<div><div></div></div> 0.7		Malta	<div><div></div></div> 2.9	<div><div></div></div> 0.8	<div><div></div></div> 2.7	<div><div></div></div> -0.6	
Luxembourg	<div><div></div></div> 1.9	<div><div></div></div> -0.2	<div><div></div></div> 2.0	<div><div></div></div> 0.2		Luxembourg	<div><div></div></div> 0.1	<div><div></div></div> 0.1	<div><div></div></div> -0.2	<div><div></div></div> 0.2	
Ireland	<div><div></div></div> 2.0	<div><div></div></div> 1.2	<div><div></div></div> 0.4	<div><div></div></div> 0.4		Ireland	<div><div></div></div> 3.9	<div><div></div></div> 4.9	<div><div></div></div> -0.5	<div><div></div></div> -0.5	
Sweden	<div><div></div></div> 2.1	<div><div></div></div> 1.8	<div><div></div></div> 0.0	<div><div></div></div> 0.3		Sweden	<div><div></div></div> 0.8	<div><div></div></div> 0.8	<div><div></div></div> 0.5	<div><div></div></div> -0.6	
Finland	<div><div></div></div> 2.4	<div><div></div></div> 1.4	<div><div></div></div> 1.1	<div><div></div></div> -0.1		Finland	<div><div></div></div> -1.2	<div><div></div></div> -0.5	<div><div></div></div> 0.0	<div><div></div></div> -0.6	
For Malta, real GDP was used instead of real GVA											
Source: Eurostat and DG REGIO calculations											

Source: EUROSTAT, DG REGIO calculations; for Malta, real GDP was used instead of real GVA.

Note: Blue bars indicate increases, red bars indicate reductions. Annual average change on previous year, in %.

Regions with expanding non-tradable sectors were harder hit by the 2007-2008 crisis.

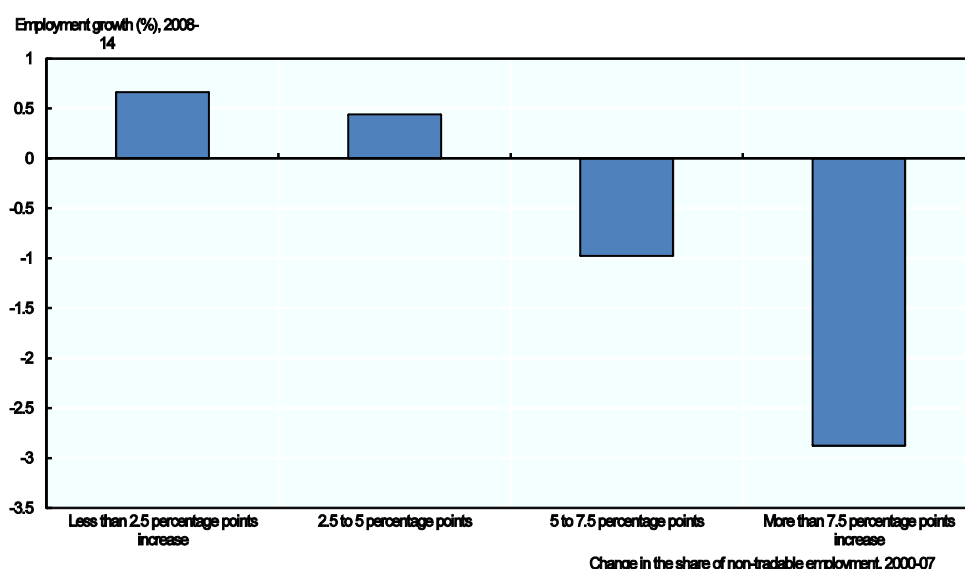
In the years following the 2007-2008 financial crisis, many regions experienced a continuous decline in employment. In the Norte region of Portugal, for example, 150 000 fewer people were employed in 2015 than in 2008 as the total number in work fell from 1.72 million to 1.57 million. Norte is not alone in this 349 large OECD (territorial level 2, TL2) regions, 46% had lower employment in 2015 than in 2008.

A variety of factors contribute to this lack of resilience to the crisis. Recent analysis indicates that the strong presence of tradable sectors supports the catching up of regions in terms of productivity (OECD, 2016b). But such sectors are also more exposed to global developments and more vulnerable to shocks. Accordingly, there is a question over whether a strong focus on tradable sectors creates risks that could be avoided by a focus on sectors that only serve the local economy.

In practice, employment after 2008 declined by more in regions in which non-tradable sectors expanded relative to tradable one over the years 2000-2007 than in others. This may seem surprising, but non-tradable activities are not independent of global developments. Indeed, they are very much dependent on what happens to the tradable sector since much of their sales either go to this sector or are affected by its performance. For example, estimates for Sweden indicate that for each job created in manufacturing between 0.4 and 0.8 jobs are created in non-tradable services, while estimates for the United States suggest a local job-multiplier of up to 1.6 (Moretti, 2010; Moretti and Thulin, 2013). Moreover, whereas non-tradable sectors have to rely on local demand to pick up after a recession; tradable sectors have the possibility of developing new markets where demand is expanding.

Employment growth in the post-2007-2008 period was lower in regions where non-tradable sectors expanded more before the crisis

Annual average employment growth in 2008-13 and the change in the share of total employment in non-tradable sectors 2000- 2007 in 19 OECD countries



Note: Data for 203 territorial level 2 (TL2) regions in 19 OECD countries: Austria, Australia, Belgium, Bulgaria, Czech Republic, Denmark, Finland, Greece, Ireland, Italy, the Netherlands, Portugal, Romania, Slovenia, Slovak Republic, Spain, Sweden, the UK and the US.

Source: OECD (2017) and OECD Regional Statistics Database [Database]

1.3.2 Capital metropolitan regions more prone to boom and bust than in other regions

In 2014, metropolitan (metro) regions accounted for 58% of population in the EU, 61% of employment and 67% of GDP.

Accordingly, they are major centres of employment and business activity with higher productivity than elsewhere.

In both the EU-15 and EU-13, real GDP per head in metro regions grew faster than in other regions in the pre-crisis years between 2001 and 2008 (Table 1-3). Growth rates in capital city regions were especially high, mainly fuelled by higher productivity growth in the EU-15 and higher employment growth in the EU-13.

Box: Metro Regions

Metro regions are NUTS 3 regions, or groupings of NUTS 3 regions, representing all functional urban areas of more than 250,000 inhabitants. The typology distinguishes three types capital city regions; second-tier metro regions and smaller metro regions.

The capital city region includes the national capital. Second-tier metro regions are the group of largest cities in the country excluding the capital. It is not possible to use a fixed population threshold to distinguish these regions from smaller metro ones (i.e. the remaining metro regions), so a natural break is used instead.

For more details:

http://ec.europa.eu/eurostat/statistics-explained/index.php/Territorial_typologies_for_European_cities_and_metropolitan_regions

The crisis had a different effect on the metro regions in the EU-15 than on those in the EU-13. In the EU-15, GDP per head in the capital metro regions declined at the same rate as in other regions between 2009 and 2014. In the EU-13, it was rather stable in the capital metro regions, whereas it grew in the other regions, mainly fuelled by increases in productivity. In both the EU-13 and EU-15, there was a reduction in employment in all types of regions.

In the EU-13, growth of GDP per head in non-capital metro regions over the period 2009-2014 was, on average, twice the EU-13 average as a result of high productivity growth while employment remained unchanged. Whether this launches a period of higher growth outside the capital regions, so a narrowing of the gap in GDP per head with the latter, remains to be seen.

Table 1-3 Changes in GDP per head, productivity and employment per head by type of metropolitan region, 2001-2008 and 2009-2014 (average % per year)

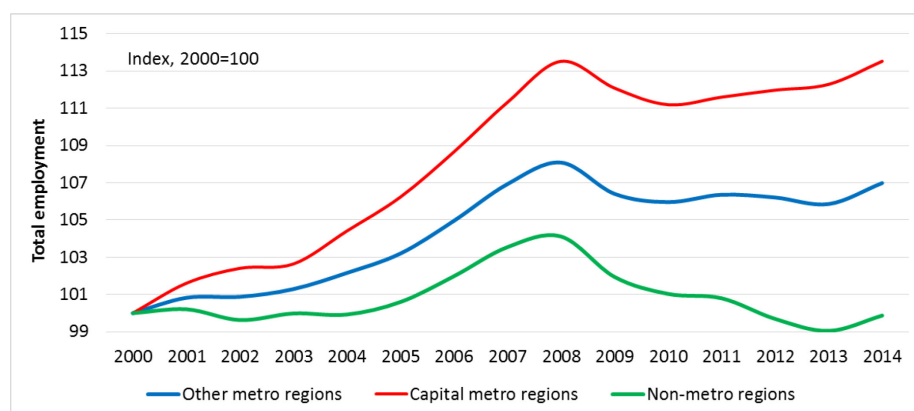
Change in GDP per head, productivity and employment per head by type of metropolitan region, 2001-2008 and 2009-2014						
Average annual change (%)	2001-2008			2009-2014		
	GDP per head	Productivity	Employment per head	GDP per head	Productivity	Employment per head
EU15						
capital metropolitan regions	1.5	1.1	0.4	-0.1	0.5	-0.7
other metropolitan regions	1.2	0.7	0.5	-0.3	0.2	-0.6
non-metropolitan regions	1.2	0.7	0.5	-0.5	0.2	-0.6
Total	1.3	0.8	0.5	-0.3	0.3	-0.6
EU13						
capital metropolitan regions	5.6	3.3	2.3	0.2	0.6	-0.5
other metropolitan regions	4.7	4.1	0.6	1.9	2.2	-0.3
non-metropolitan regions	4.8	4.5	0.2	1.1	1.7	-0.6
Total	5.1	4.3	0.8	1.1	1.6	-0.5
EU28						
capital metropolitan regions	2.0	1.1	0.9	-0.1	0.6	-0.6
other metropolitan regions	1.5	0.9	0.6	-0.2	0.4	-0.5
non-metropolitan regions	1.7	1.3	0.4	-0.2	0.4	-0.6
Total	1.7	1.1	0.6	-0.1	0.5	-0.6

Source: EUROSTAT, DG REGIO calculations

Note: green bars indicate positive changes, red bars indicate negative changes. Annual average change on previous year, in %

Employment in both metro and non-metro regions generally increased between 2000 and 2008, though at a faster rate in capital city regions than others and by more in other metro regions than non-metro ones (Figure 1-9). In the next two years, it declined markedly in all regions, but it then began to recover in the capital city regions, continuing to grow up to 2014 when the number employed was much the same as before the crisis. In the other metro regions, recovery was more hesitant and by 2014, employment was still below the level in 2008. In the non-metro regions, employment continued to decline up to 2013 and began to increase only in 2014.

Figure 1-9: Evolution of total employment (number employed) in metro regions, 2000-2014



Source: Lavalle et al. (2017)

1.3.3 GDP growth in rural and intermediate regions proved to be more resilient during the crisis years

Between 2001 and 2008, real GDP per head in rural regions (Table 1-4) in the EU-28 grew by 1.9% a year, slightly higher than in other types of region. At the same time, productivity grew faster, while employment relative to population rose more slowly.

In the EU-15, GDP per head grew in all types of region, fuelled in equal parts by increases in productivity and the employment rate, though in rural regions more by productivity.

In the EU-13, in the years before the crisis, economic growth was mainly driven by increases in productivity, especially in rural regions, where increases were accompanied by a decline in employment. The two may be linked, insofar as higher productivity growth was due to catching up in the use of technology and more efficient methods of working, including in agriculture, which in turn led to a reduction in employment.

The crisis had a different effect on rural regions than others, since construction and industry were most affected and these are less present in rural areas. Accordingly, the reduction in GDP per head between 2009 and 2014 was less pronounced in rural regions than in urban ones, particularly in the EU-15. In the EU-13, GDP per head grew over this period in all types of region and at much the same rate, but in all cases by much less than before the crisis.

Employment declined in all types of region, but more in urban and intermediate ones in the EU-15 and in urban and rural ones in the EU-13.

Productivity continued to grow in both the EU-15 and EU-13 and, as in the pre-crisis period, by more in the latter than the former, though the difference in rates was much smaller.

In 2014, GDP per head in rural regions in the EU-15 was, on average, some 72% less than in urban ones, while in the EU-13, the difference was much wider, the level in urban regions being only 42% of that in rural ones.

Degree of urbanisation and urban-rural typology

Since the 5th Cohesion Report, the European Commission has developed two typologies of local areas which are linked to two typologies of regions.

The new degree of urbanisation is linked to the division of regions into predominantly urban, intermediate and predominantly rural. Both typologies rely on a new analytical tool, the population grid, which is used to identify three types of cell:

1. urban centre (alternative name: high-density cluster): contiguous grid cells of one square km with a population density of at least 1 500 inhabitants per square km and a minimum population of 50 000
2. urban cluster: contiguous grid cells of one square km with a density of at least 300 inhabitants per square km and a minimum population of 5 000;
3. rural grid cell: grid cells outside urban clusters;

These are then used to define three types of municipality (local administrative unit level 2) as follows:

1. cities: at least 50% of the population living in an urban centre
2. towns and suburbs: less than 50% of the population living in an urban centre, but more than 50% in an urban cluster;
3. rural areas: at least 50% of the population living in rural grid cells.

These cells are also used to define NUTS 3 regions as follows:

- predominantly urban: less than 20% of the population living in rural grid cells;
- intermediate: between 20% and 50% of the population living in rural grid cells;
- predominantly rural: at least 50% of the population living in rural grid cells.

This creates an especially close link between rural regions and rural areas which are defined in the exactly same way.

For more details:

http://ec.europa.eu/eurostat/statistics-explained/index.php/Urban-rural_typology

Table 1-4: Real GDP per head, productivity and employment per head growth by urban-rural typology, 2001-2008, and 2009-2014

Average annual change (%)	2001-2008			2009-2014			GDP per head (PPS) index			GDP per head (PPS) index		
	GDP per head	Productivity	Employment per head	GDP per head	Productivity	Employment per head	EU-28 = 100			EU-15/13 = 100		
							2000	2008	2014	2000	2008	2014
EU15												
Urban	1.4	0.8	0.5	-0.3	0.4	-0.7	132	125	122	113	113	112
Intermediate	1.2	0.7	0.5	-0.4	0.2	-0.6	106	100	98	91	90	90
Rural	1.2	0.9	0.4	-0.1	0.3	-0.4	93	88	88	80	79	81
Total	1.3	0.8	0.5	-0.3	0.3	-0.6	117	111	109	100	100	100
EU13												
Urban	5.7	3.8	1.9	1.1	1.1	-0.1	73	102	113	164	171	170
Intermediate	4.8	3.8	0.9	1.1	1.8	-0.7	41	53	59	92	89	88
Rural	4.8	5.0	-0.2	1.0	1.6	-0.6	33	43	48	73	72	71
Total	5.1	4.3	0.8	1.1	1.6	-0.5	45	60	67	100	100	100
EU28												
Urban	1.6	0.9	0.7	-0.2	0.4	-0.6	125	123	121			
Intermediate	1.7	1.1	0.6	-0.2	0.5	-0.6	88	88	88			
Rural	1.9	1.7	0.2	0.1	0.6	-0.5	69	71	73			
Total	1.7	1.1	0.6	-0.1	0.4	-0.6	100	100	100			

Source: EUROSTAT, DG REGIO calculations

Note: green bars indicate positive changes, red bars indicate negative changes. Annual average change on previous year, in %

1.4. THE ECONOMIC DEVELOPMENT CLUBS OF EUROPEAN REGIONS AND THE MIDDLE-INCOME TRAP⁷

Economy-wide forces together with differences in the characteristics of economies mean that it is possible to divide countries, regions and cities by their level of economic development. They can be said to belong to different ‘development clubs’, each of them characterised not only by different income levels but also by different structural features, such as the education level of population, infrastructure endowment, innovation capacity and institutional quality.

Clubs differ systematically across these dimensions and for each club there are specific needs and challenges related to its starting point. Grouping EU regions into income clubs is a way of generating insights into economic development and provides a distinctive perspective on regional policy. It brings out the uneven path of regional development that occurs and helps to identify means of overcoming the barriers to development in lagging regions. For this purposes, EU NUTS 2 regions can be divided into four groups according to their GDP per head in 2013 (see box below).

Income clubs of EU regions

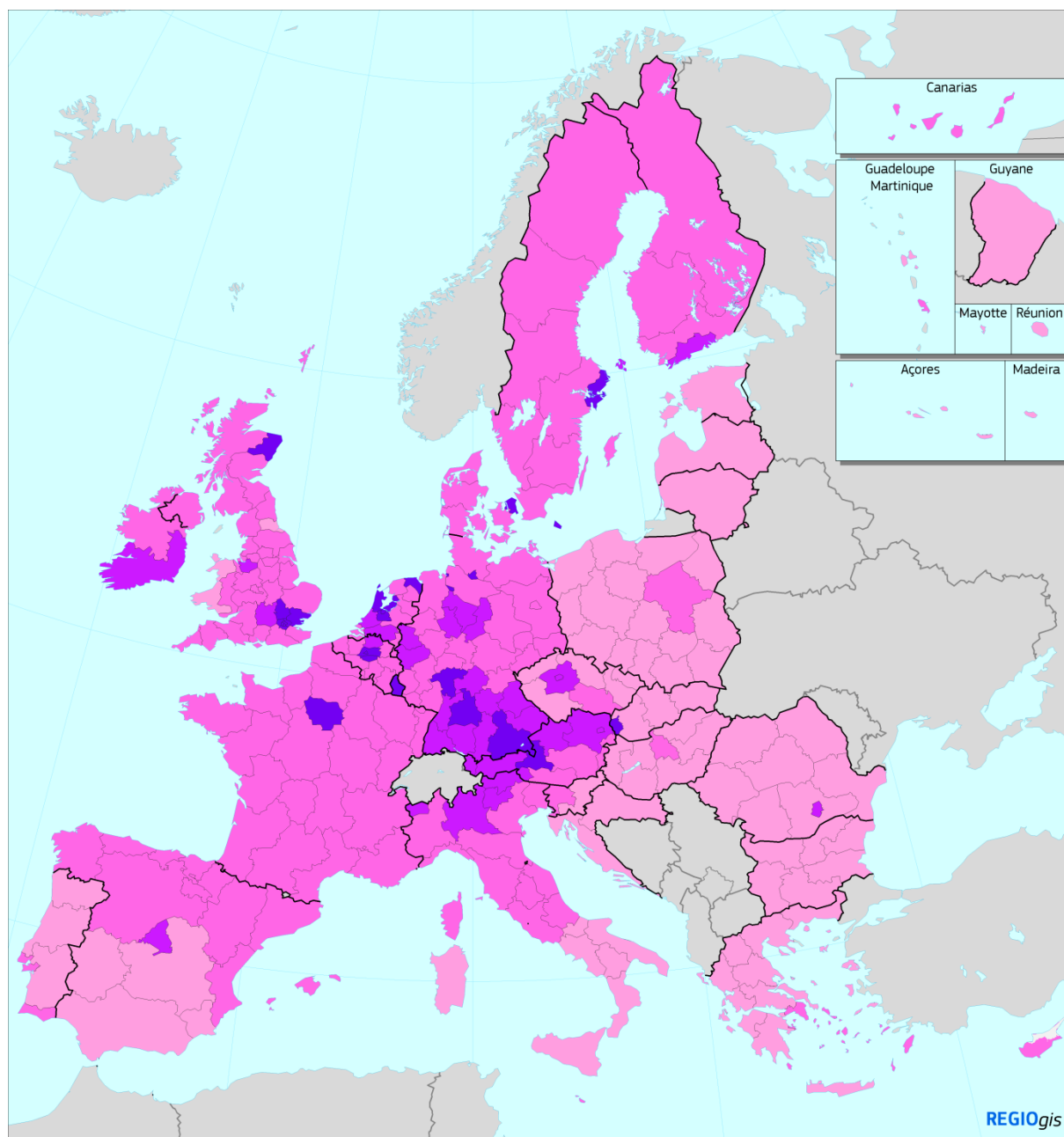
[1] Very high income group: those with GDP per head in PPS of 150% or more of the EU average in 2013, [2] High income group; those with GDP per head of 120-149% of the EU average; [3] Medium income group; those with GDP per head of 75-120% of the EU average, [4] Low income group, those with GDP per head of below 75% of the EU average.

Most of the very-high and high income regions are located in a band from London through the Benelux and Germany down to northern Italy, with a few capital city regions outside this area (Map 1-6). There are two other broad areas, a large middle-income part in the west of the EU and a low income part in the south and the east.

The very-high income club is dominated by a few very large urbanized or capital city-regions, and by a number of smaller but highly urbanized inter-connected ones (e.g. Rhine-Ruhr in Germany or Randstad in the Netherlands), specialized in the production of high-quality goods and services.

⁷ Prof. Simona Iammarino, Prof. Andrés Rodríguez-Pose, and Prof. Michael Storper substantially contributed to the content of this section.

Map 1-6: The economic development clubs of EU regions



The Economic Development Clubs of European Regions



0 500 km

© EuroGeographics Association for the administrative boundaries

Source: EUROSTAT, REGIO-GIS elaborations.

The high-income regions share many characteristics with the very-high income ones but tend to be less city-centered. The medium-income club is vast and consists mainly of regions in the north-west of Europe outside the very-high and high income clubs. The low-income club is concentrated in the east and south of the EU.

The structural characteristics of the four clubs differ markedly (Table 1-5).

Table 1-5: European regions, by income club: some stylised facts

Income club	Growth of GDP per head, average annual rate, % (2001-15)	Population change, % (2001-15)	Employment average annual change, % (2001-14)	Employment in Industry, % (2014)	Employment average annual change in Industry, % (2001-14)	Unemployment rate, % (2016)	Patent applications per million inhabitants (2010-11)
Very high	1.4	10.7	0.8	12.3	-1.2	5.8	254
High	0.9	7.3	0.5	16.9	-0.8	5.9	232
Medium	1.0	6.2	0.3	14.4	-1.5	8.4	103
Low	1.7	-2.0	-0.6	20.3	-1.0	11.6	8
EU28	1.3	4.4	0.1	16.1	-1.2	8.5	113

Source: EUROSTAT, Cambridge Econometrics, DG REGIO calculations based on the latest available data.

Total population change varies with the club gradient, with people moving to higher-income regions and away from low income ones. Many high-income regions experienced high rates of population increase over the period 2001-2015, except for those in Germany. In many low-income regions in the east and south of the EU as well as in declining industrial parts of north-eastern France and northern England, population declined. While some low-income regions experienced population growth over the period, these tend to be those with extensive amenities and a low cost of living.

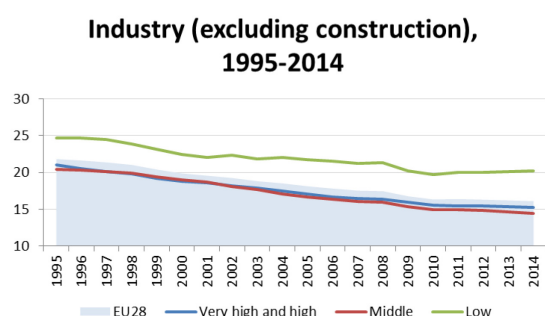
Examining the labour market in the different clubs provides further insights. Employment declined between 2001 and 2014 while it increased in the other regions, especially in the very-high income ones. The share of employment in industry (excluding construction), as observed above, is largest in low-income regions. In all clubs, however, employment in industry declined over the period, the more so in the middle-income ones. Low income regions, as also seen above, have the highest unemployment.

Patenting activity, which is an indicator of innovation, is highly concentrated in very-high and high income regions.

Very-high and low income regions experienced the highest growth in GDP per head over the years 2001-2015. In the former, this is mainly due to their level of competitiveness and specialisation in the production of high-quality goods and services, while low-income regions are catching-up, taking advantage of their ability to mobilise low-cost

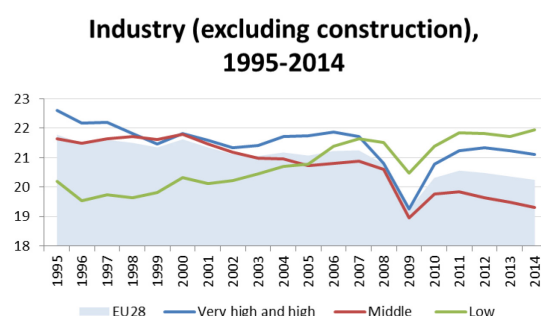
capital and labour to capture activities for which this gives them a competitive edge. Middle-income regions had the lowest growth and face a particular challenge – the so-called 'middle-income trap' – because they are neither very cheap, nor are they particularly innovative or productive. Their manufacturing sector tends to be smaller and weaker than in regions with either a higher GDP per head or lower one (Figure 1-10 and Figure 1-11) and their costs are too high to compete with the former, their innovation systems not strong enough to compete with the latter.

Figure 1-10 Employment shares in industry (excluding construction), by club, 1995-2014



Source: Cambridge Econometrics, DG REGIO calculations

Figure 1-11 GVA shares in industry (excluding construction), by club, 1995-2014



Source: Cambridge Econometrics, DG REGIO calculations

The main challenges for regions in each club can be summarised as follows:

1. *Very-high income club*: many of these regions are attracting population, though some of them have high unemployment rates and have under-performed since the beginning of the economic crisis (Dijkstra et al., 2015). The main need is to keep pace with global competitors. They need to maintain their specialisation in high-wage activities and their comparative advantage by continuing to push the boundaries of innovation and technology.
2. *High income club*: regions in this group share many characteristics with the very-high income ones. Their employment rates are high and the challenge is to remain innovative, but they are more vulnerable to competition from the lower income regions. They are particularly vulnerable to standardisation of what they produce which can allow firms to move to regions with lower costs and less-skilled labour. Their challenge is to innovate in their areas of specialisation and to expand into high value-added activities related to this.
3. *Medium income club*: this is a large group consisting of two sub-groups, each with specific challenges. One consists of regions that have lost manufacturing jobs and in which the education level of the work force is below that in higher income regions. In general, they are fragile economically because of this. The other consists of regions experiencing population growth, but mainly of older people who move there because of the local amenities and low cost of living. Such inward movement mainly stimulates employment in non-tradeable local services, which gives rise to limited skill

development, innovation capacity and export capability. Regions, in both sub-groups, risk falling into a 'middle-income trap'. As productivity and wages rise, they become less attractive for labour-intensive, low-skilled activities. Moving up the value chain requires higher investment per worker than in earlier stages of development, because of the need for a better educated labour force and new business models. To become attractive for higher value-added activities, regions have to improve the quality of their institutions and business ecosystem, become more innovative and improve the skill sets of their labour forces through better education and training.

4. *Low income club*: these regions suffer from having low levels of technology and business organization and a work force with limited skills, but they have the advantage of offering low-cost land and labour. They tend to lose talented people and well-educated young people to higher-income regions, while at the same time being unable to attract firms and talent from outside, so encouraging an outward movement of population.

1.5. COMPETITIVENESS OF EU REGIONS

1.5.1 Firms in EU Capital metro regions tend to be larger and to grow at a faster pace.

In the 2014-2020 period, Cohesion Policy is focused heavily on supporting smart growth with particular emphasis on innovation and high growth firms and with programmes aimed at increasing the innovative capacity of SMEs. In previous periods too, a substantial share of Cohesion Policy funding was devoted to improving the business environment and supporting entrepreneurship. In the 2007-2013 programming period, for example, some EUR 47.5 billion, 24% of the total ERDF, was allocated to support of SMEs.⁸

Business demography Statistics

Business demography indicators at regional level are useful to show where firms are located in the EU, and their dynamics, in terms of births, deaths and growth. In this section, a set of such indicators are examined: firm density (expressed as the number of firms relative to population), employees per firm, birth rates (firms created in a region relative to total population), death rates (firms going out of business relative to total population), and the proportion of high growth firms.¹

The source of data is the Employer Business Demography Statistics (for firms with at least one employee) for 2014 (or the closest year available with non-provisional data) for the total business economy of NACE Rev.2, except insurance activities of holding companies (sector K642).

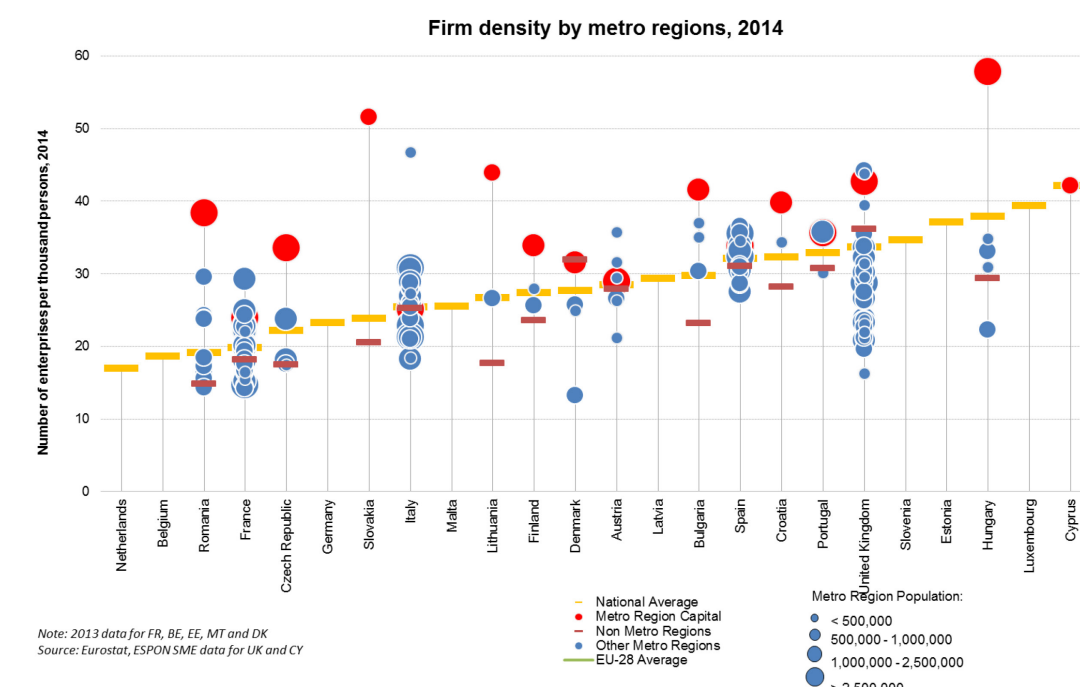
For more details see: http://ec.europa.eu/eurostat/statistics-explained/index.php/Structural_business_statistics_at_regional_level

In 2014, the largest number of firms with at least one employee⁹ relative to population was in capital metro regions in most countries (the exceptions are France, Italy, Austria, and Spain (Figure 1-12). There are, however, large variations across regions in the same Member State, particularly in Romania, Slovakia and Hungary. Firms, especially large firms, may locate in more urbanised areas to benefit from agglomeration economies, the three main sources of these being matching, sharing and learning (Puga, 2010). Cities, therefore, tend to have larger labour markets allowing a better matching between labour demand and supply, a better sharing of inputs, such as infrastructure, in the production process and more people working and living in close proximity enabling them to learn more easily from each other.

⁸ European Union (2016), Support to SMEs – Increasing Research and Innovation in SMEs and SME Development. Ex post evaluation of Cohesion Policy programmes 2007-2013, focusing on the European Regional Development Fund (ERDF) and the Cohesion Fund (CF), Executive Summary, available at: http://ec.europa.eu/regional_policy/sources/docgener/evaluation/pdf/expost2013/wp2_final_en.pdf.

⁹ The terminology employer firms will be used throughout the chapter to indicate firms employing at least one employee.

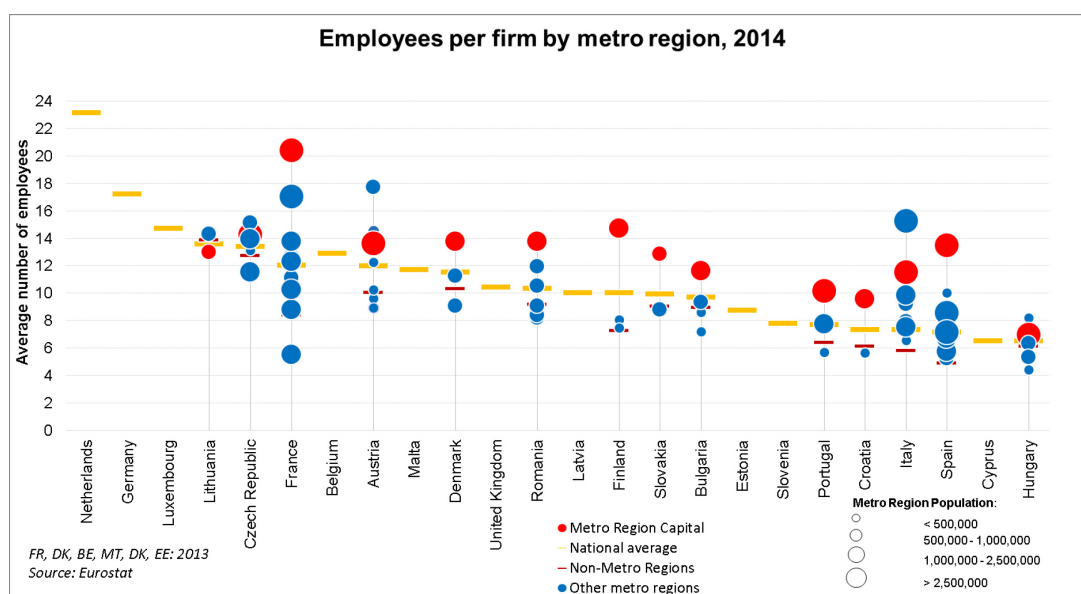
Figure 1-12: Firms density by metro region, 2014



At the same time, firms operating in urban areas face more competition, since larger markets attract more firms. This tends to result in less competitive firms being forced out of business (Melitz and Ottaviano, 2008; Combes et al., 2012). The data, indeed, show that firms in metro regions, particularly in capital city ones, are on average, larger in terms of employment than those in non-metro regions, apart from in Latvia and Hungary (Figure 1-13)¹⁰.

¹⁰ Some care is needed in interpreting this result. Some large enterprises may be composed of multiple local units which may be located in different regions, but with their employment registered in the head office, often located in the capital of a country. This may inflate the number of employees that are counted as working in the capital city.

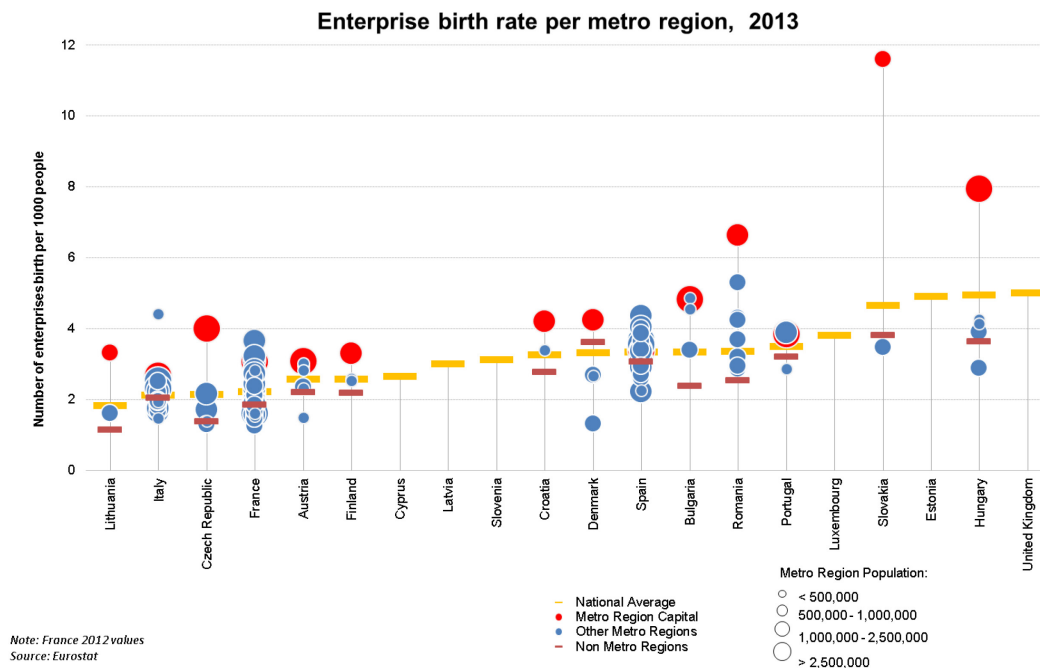
Figure 1-13: Employees per firm by metro region, 2014



The birth of enterprises is one of the main drivers of job creation and economic development. Young enterprises are often innovative and tend to increase the competitiveness of a region both directly and indirectly by pushing competitors to become more efficient.

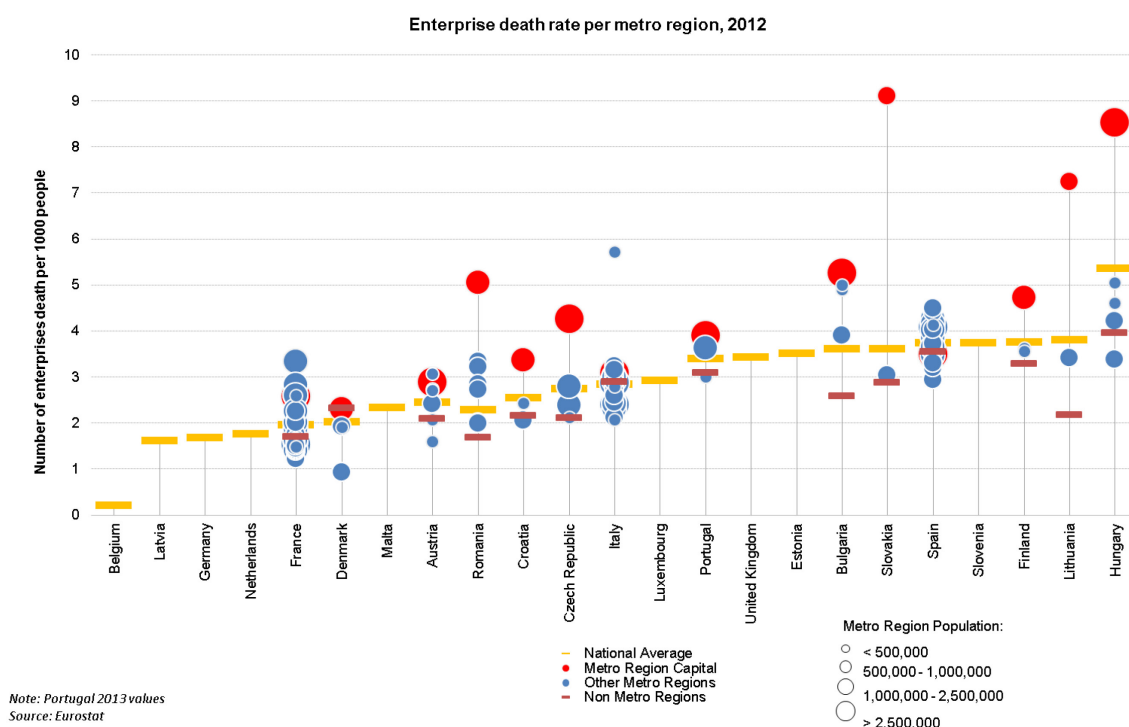
In 2013, (the latest year for which data are available) newly-created enterprises were more numerous in capital metro regions, both in more developed and less developed Member States, except in Spain and Italy, the highest birth rates being in Bratislava and Budapest (Figure 1-14).

Figure 1-14: Enterprise birth rate per metro region, 2013



High birth rates often go together with high death rates (Figure 1-15), as in Bratislava and Budapest. However, some regions have high rates of start-up but low death rates, as in Copenhagen, hinting at local features which nurture the birth of new enterprises while also keeping them profitable.

Figure 1-15: Death rate of enterprises, 2012



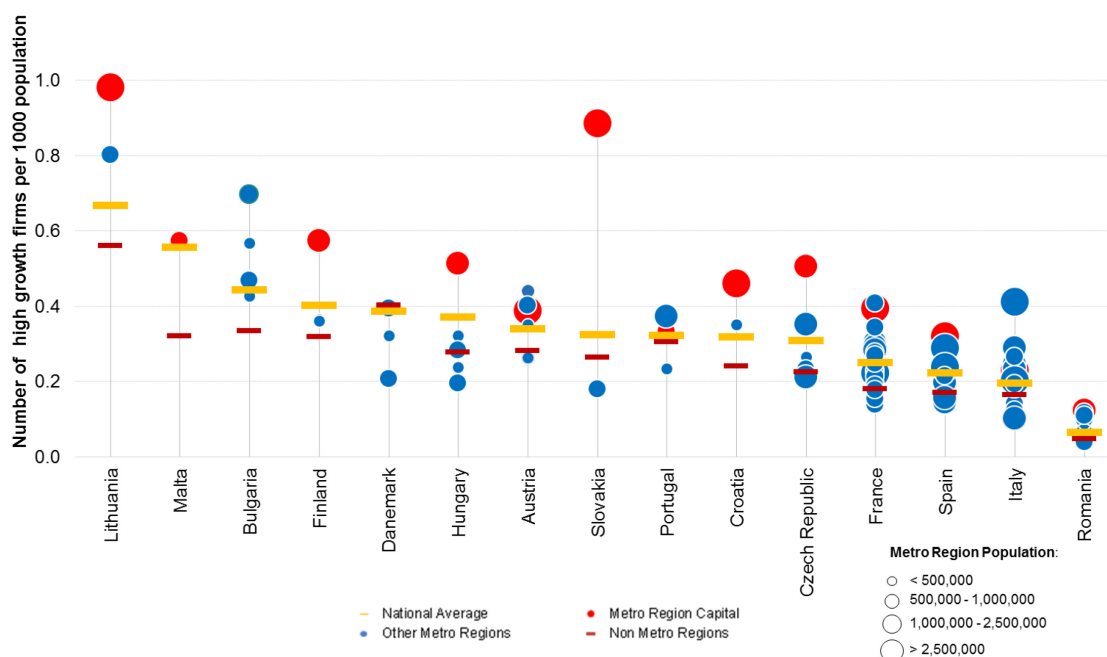
High growth enterprises (those growing by 10% a year or more)¹¹ play an important role in the economic growth of cities and regions through their contribution to productivity and innovation (Acs et al., 2008).

In 2014, high growth firms were found mainly in metro regions, except in Portugal and Italy, though there were marked variations in their incidence within countries (Figure 1-16). In a number of Member States - Slovakia, Hungary and the Czech Republic in particular –, the large variation between regions is due mainly to the large number of high-growth firms operating in the capital metro region.¹²

¹¹ A high-growth enterprises are those in which employment increased by 10 % a year or more over a three-year period and which had at least 10 employees at the beginning of the period.

¹² As indicated above, perhaps at least partly because of employment in local units being registered in the head office.

Figure 1-16: Number of high growth firms per 1000 inhabitants, in 2014



Source: Eurostat, Business Demography, DG REGIO calculations

Note: France, Denmark, 2013

Entrepreneurship is crucial for regional development, but start-ups and 'scale-ups' face particular financing constraints

Start-ups and 'scale-ups' (firms expanding) need capital. However, EU start-ups have more difficulty in obtaining venture capital than their US counterparts. EU scale-ups have even more difficulty to grow and remain independent than US firms. An additional problem is that venture capital is usually concentrated in few places (and often in the capital city), though there are exceptions, such as the UK where it is more widely available, partly due to the support from regional development funds.

To boost investment opportunities from venture capital and make funding more accessible to small and innovative enterprises, the Commission launched a pan-European Venture Capital Fund-of-Funds under the Start-Up and Scale-Up Initiative (COM(2016) 733 final of 22.11.2016). This complements other financial instruments under the EU programme for the Competitiveness of Enterprises and SMEs (COSME) and Horizon 2020's Innovfin, to facilitate access of SMEs to guarantees, loans and equity capital through local financial institutions in the Member States.

To help start-ups and scale-ups, and building on the Single Digital Gateway and existing national and European contact points, the Enterprise Europe Network will make available 'Scale-up Advisors' in all regions to provide advice on relevant national and European regulations, funding and partnering opportunities and how to participate in cross-border public procurement.