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Regional inequality in Europe: evidence, theory and policy implications

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Abstract

Regional economic divergence has become a threat to economic progress, social cohesion and political stability in Europe. Market processes and policies that are supposed to spread prosperity and opportunity are no longer sufficiently effective. The evidence points to the existence of several different modes of regional economic performance in Europe, responding to different development challenges and opportunities. Both mainstream and heterodox theories have gaps in their ability to explain the existence of these different regional trajectories and the weakness of the convergence processes among them. Therefore, a different approach is required, one that strengthens Europe's strongest regions but develops new approaches to promote opportunity in industrial declining and less-developed regions. There is ample new theory and evidence to support such an approach, which we have labelled 'place-sensitive distributed development policy'.

Keywords: Regions, inequality, economic divergence, place-sensitive development, European Union.

JEL Classification: R11, R12, R58

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1. THE CHALLENGE

“Regional inequality is proving too politically dangerous to ignore”

The Economist, 17 December 2016

In the European Union (EU) in the new millennium, inequality among regions¹ has turned sharply up. This is not uniquely a European problem, but one common to many countries, both developed and developing – for example, the inequality in income per person among US metropolitan areas was 30% higher in 2016 than in 1980 (Ganong and Shoag, 2015).

Since the late 1970s a combination of globalisation and technological change (and some policy choices) have generated what are known as the ‘great inversion’ and the ‘new geography of jobs’ (Moretti, 2012; Storper, 2013). The inversion concerns the fact that many rural regions and middle-to-small metropolitan areas that were once quite prosperous have been characterised by a combination of job loss, declining labour-force participation or declining per-capita income relative to the national average. In some others, employment may be increasing but on average is not of high quality, comprising routine and relatively less-skilled jobs. Centres of small and medium-sized manufacturing cities continue to suffer from a decline in employment or relative income, while their surrounding suburban or rural areas are characterised by income stagnation.

In contrast, many large metropolitan areas, including their suburbs, are now among the most dynamic in terms of income and employment creation. In Europe, in particular, the panorama is complex. On the one hand, the increasingly familiar dichotomy persists between dynamic large urban agglomerations and stagnating industrialised and remote regions. Many industrial declining and/or peripheral regions have suffered a steady long-term decline in employment and competitiveness, whereas the inner areas of some large metropolitan regions have gained greater shares of high-wage jobs. On the other hand, a number of capital metro regions have been hard hit by the crisis, while some rural and intermediate regions have displayed more resilience (Dijkstra et al., 2015). The result is a finely grained, multi-scale territorial patchwork of diverging real incomes and rates of labour force participation: between states and regions; within regions, between core areas and peripheral areas; and between prosperous metropolitan regions and less-prosperous ones. This article combines evidence and theory to rethink the policy framework for regional economic development in the EU. Recent changes in inter-regional inequality require reconsidering the usual frameworks underlying policy, and especially the standard people-versus-place division in policy formulation. In order to achieve this, we begin by presenting evidence showing that the overall growth in inter-regional inequality is underpinned by the existence of several groups of regional economies in Europe that are structurally very different from one another. Theory predicts that slow convergence in an integrated economic area such as the EU will come about from some combination of diffusion processes (knowledge, de-agglomeration) and labour mobility. These mechanisms, however, are no longer working to trigger economic convergence. Strong barriers to territorial development have been erected in terms of skill structures and formal and informal institutions. Inter-regional inequality and the breakdown of prosperity and convergence mechanisms are not only an economic problem, but have become a source of social and political instability for the EU and its member states. Our success or failure at solving these problems will shape Europe’s political and economic future.

In order to create a policy framework that is addressed to these realities of different structural development groups with weak convergence and diffusion mechanisms, we argue in the second part of this article that standard distinctions or trade-offs between so-called ‘people-based’ policies (mobility, education, etc.) and ‘place-based’ approaches (job development, innovation support, etc.)

¹ Throughout the paper the level 2 of the EU Nomenclature of territorial units for statistics (NUTS-2) is used when referring to European regions.

should be replaced by ‘place-sensitive’ frameworks based on integrated micro (individual) – meso (territorial) logics of tackling diverse development trajectories. Moreover, policy should embrace the goal of achieving (or enhancing) development in all types of regions, but not be based on any formulaic notions of convergence or redistribution. This kind of framework is distinctive from, but potentially complementary to, other current EU regional policy approaches and instruments.

2. EVIDENCE: DEVELOPMENT GROUPS OF EUROPE’S REGIONS

The interaction of economy-wide forces and regional characteristics creates a geography made up of countries, regions and city-regions that are at different structural positions in the wider economy’s ladder of roles and functions (Scott and Storper, 2003). The issue is not whether, at any particular moment, there is perfect convergence or equality in development levels: there never is. But rather whether the economy is spreading prosperity or concentrating it.

A summary indicator of development and prosperity is per capita personal income, or its close cousin, GDP per head. GDP per head for the economy of any given country, region or city-region is a good indicator of many of its key characteristics. Economies at similar income levels often share many structural attributes, including education levels, science and technology endowments, infrastructure and institutional quality. Conversely, between economies with dissimilar income levels, these structural attributes tend to differ significantly. Consequently, nations, cities and regions can be grouped according to their levels of development. These groups differ systematically across a number of dimensions.

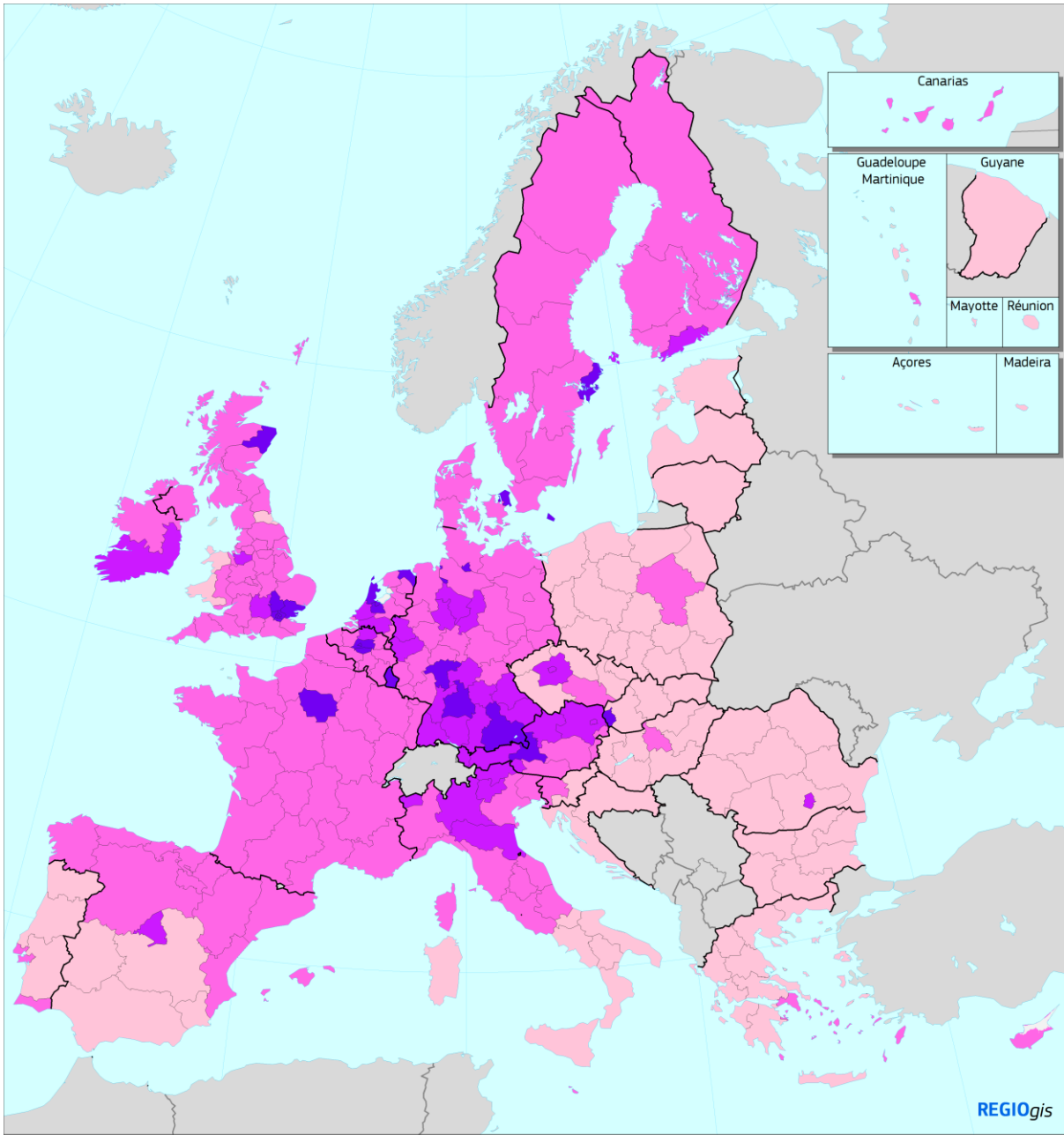
A very-high-income economy, for example, is characterised by high average wages and labour force participation, whereas a low-income economy has low average wages. The high-income economy stays ahead of cost competition from below by continuing to innovate or capture innovative, high-growth sectors. The advantage held by a low-income economy is that it can mobilise relatively lower-cost capital and labour to capture activities susceptible to being delocalised or off-shored, in search of cost compression. Middle-income regions, as we shall see, face a particular challenge because they are neither cheap nor extravagantly innovative or productive. Each development group has specific needs and challenges related to its starting point and its near- to medium-term prospects in relation to those of other groups.

There are some generic lessons about development that apply to all economies. Traditional approaches generally suggest that less-wealthy groups should somehow become like the more-wealthy ones and vice versa: rich places should become cheaper while poor places more productive. A financial centre such as Frankfurt (DE) and an old manufacturing city such as Lille (FR) must, in theory, converge in their economic structure, but their near- and medium-term perspectives and tasks are profoundly different from one another. Thus, grouping economies directly addresses the uneven pattern of development and the core questions of sustaining competitiveness in leading regions while enhancing prosperity in other regions, and in particular overcoming the barriers that exist in the less-favoured areas.

For this analysis of EU regions, we distinguish four groups: very high GDP per head (VH) regions, with 150% of EU average or greater (and in the national analysis, 150% of national average or greater); high GDP/head (H) regions, with 120-149% of EU or national averages; medium GDP/head (M) regions, with 75-119%; and low GDP/head (L) regions, with less than 75% of EU or national averages.

Map 1 shows the four economic development groups. The VH group encompasses a number of large cities – many of them national capitals – at the core of Europe, while the H group has its centre in the Alpine area, but involves a large number of cities and national capitals elsewhere in the EU. A large middle-income group (the M group) embraces the majority of the western side of the EU, while the L group comprises the low-income regions to the south and east.

Map 1: Classifying European regions according to their level of development



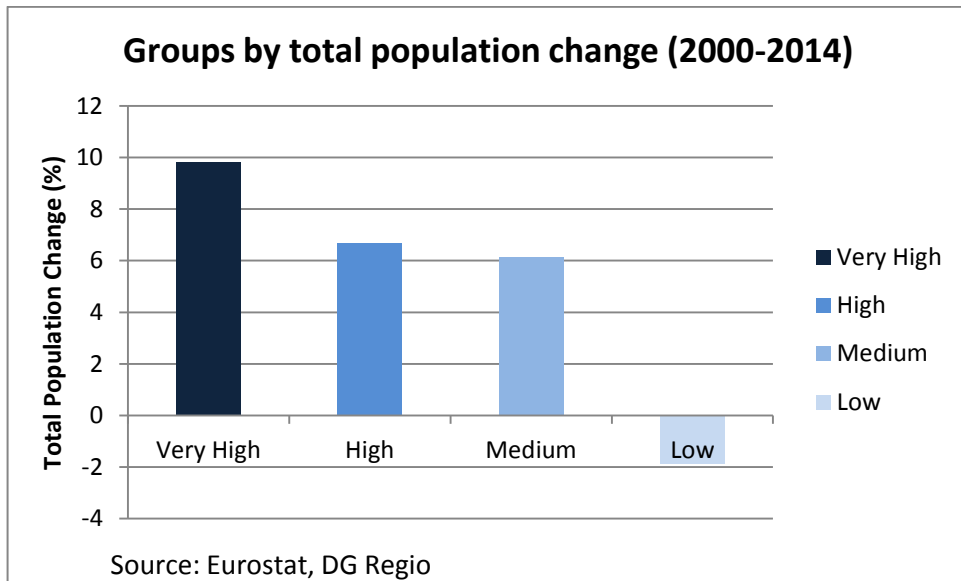
European regions according to their level of development

- Low
- Medium
- High
- Very high
- no data

0 500 km

© EuroGeographics Association for the administrative boundaries

Figure 1: Groups by total population change (2000-2014)



The demographic and labour market characteristics of these four groups differ markedly and shed light on the variety of challenges each faces. Figure 1 reveals that total population change follows the group gradient: people are going to higher-income areas and, in the case of the least developed regions, more are leaving than staying. Online Map A1 confirms this relationship by mapping the geography of GDP per capita and population growth.

Figure 2: GDP per head EU index (2013) vs. employment change (2001-14)

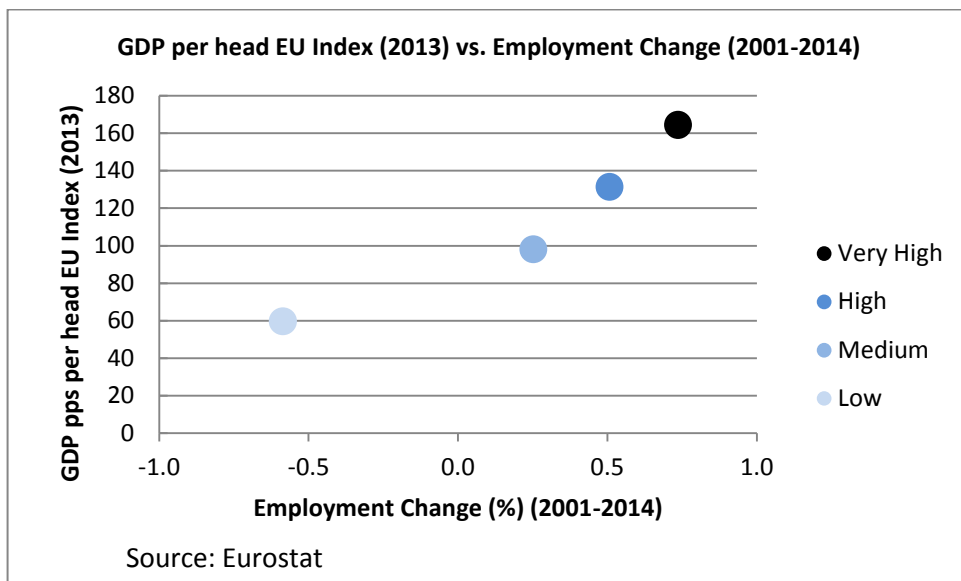
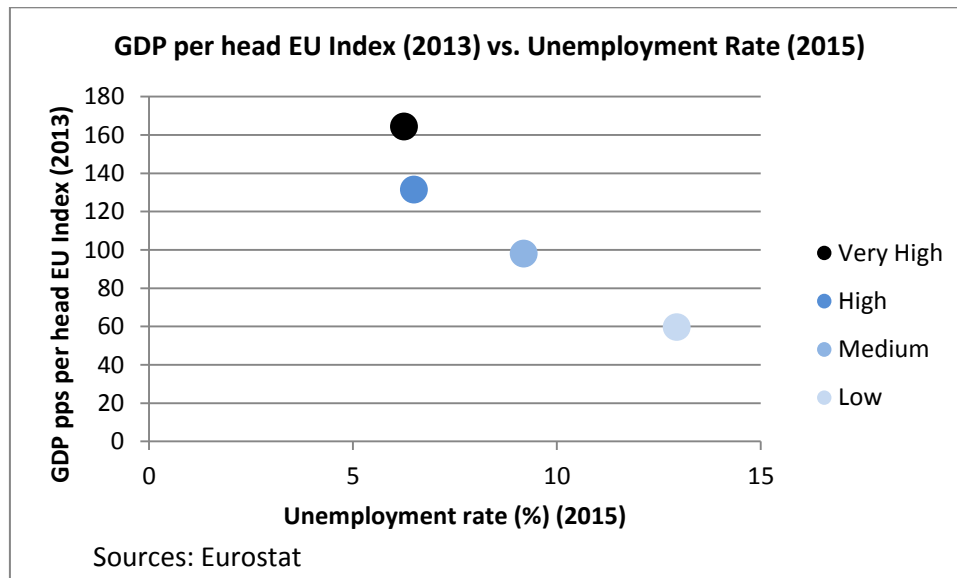


Figure 2 shows that employment has declined in the L group, remained essentially stagnant in the M group, and grown moderately in H and VH regions. Employment creation has been low in Europe as a whole, with the only exception of the very prosperous regions. Online MapA2 shows the detailed geography of GDP per capita and employment change.

Most of the regions in the H group have high rates of employment (labour force participation), although there are some (mostly Italian and Spanish) exceptions to this pattern. Online Map A3 pictures regions according to GDP per capita and their employment rate. Mirroring this, unemployment rates reflect diverse development patterns: some high-performing regions, especially metropolitan ones, have substantial ‘flow’ or turnover, while the M and L groups have higher

unemployment, which comprises more long-term unemployment than that in the VH and H groups because of differences in the structure of labour turnover (Figure 3).

Figure 3: GDP per head EU index (2013) vs. unemployment rate (2015)

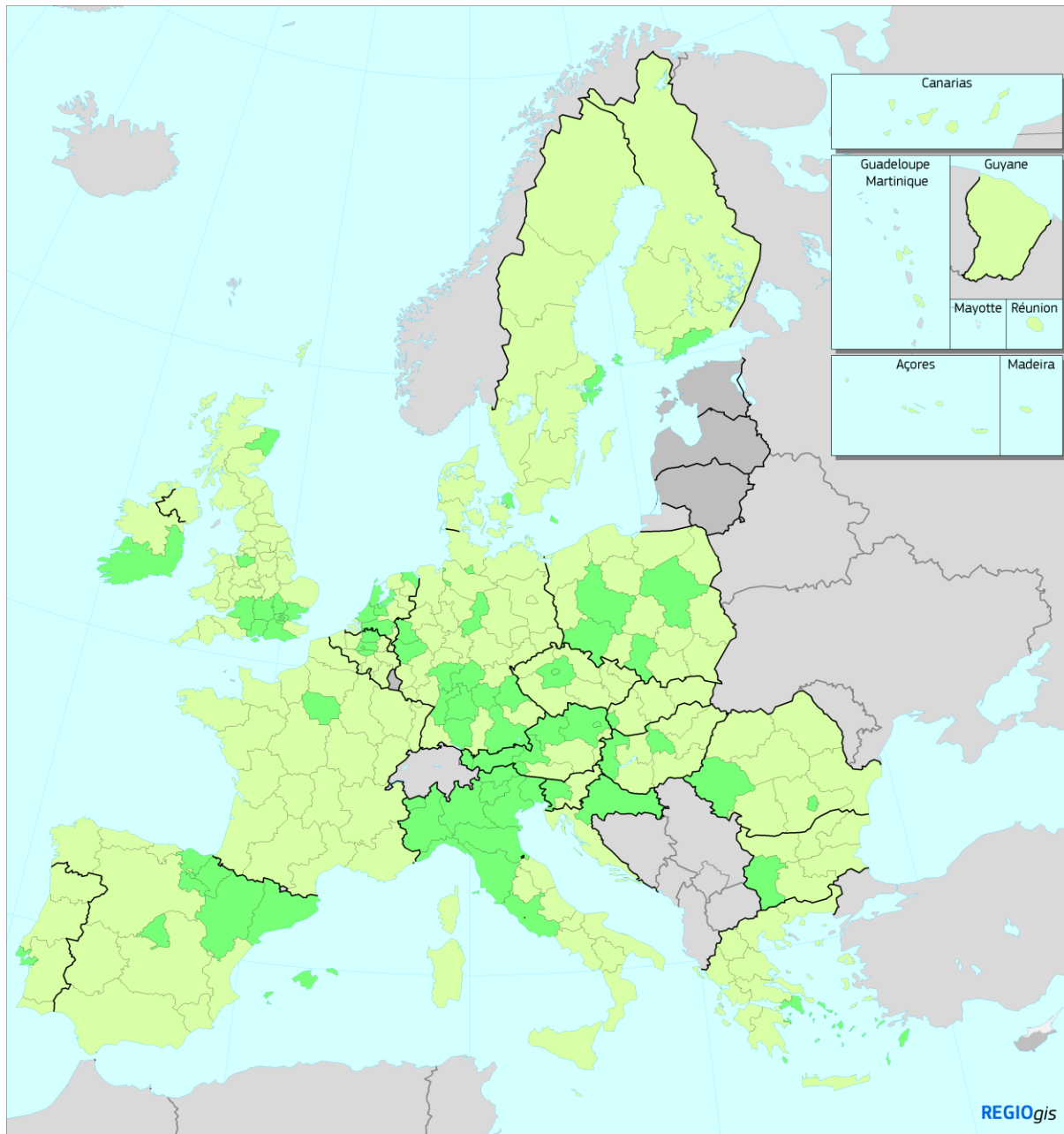


As expected, the interaction between employment and demography is reflected in labour productivity dynamics – the key way in which demography, employment and income come together. Online Map A4 depicts the geography of regions according to GDP per head and the growth of GDP per head. Many of Europe’s most prosperous regions experience increases in productivity. In some cases – as in a number of central and eastern European regions – productivity is rising against a backdrop of shrinking population, which may become problematic in the future. In parts of France, by contrast, there is a positive dynamic of population and productivity, even though the level of GDP/capita is around the EU average.

Online Maps A5 and A6 separate regions according to the differences in their GDP per head and the EU average and, respectively, employment change in industry and in services. They reveal that changes in industrial (manufacturing) and service employment relative to GDP also reflect the growing economic divide among regions. The continent’s core high-income regions (especially Germany) are supported by high-performing manufacturing productions. However, this is not true for metropolitan capitals such as London and Paris. On the other hand, manufacturing regions are characterised by routine-based production that has reduced employment due to technology and globalisation. Online Map A7 pictures regions according to GDP per capita and patenting, showing that routine manufacturing regions have suffered a decline in competitiveness relative to high-income specialised manufacturing regions, which are those hosting high-end innovative manufacturing. Areas with high income and innovative manufacturing are also often dynamic in service growth, because manufacturing and highly skilled, knowledge-intensive services are strongly complementary in today’s economy. Low growth in services in many of the poorly performing regions is a sign of this complementarity. Europe has an advantage in both manufacturing and services in its high productivity and income regions. The only real exception to this is growth in some dynamic but low-skilled services, such as tourism, in regions with good natural amenities – e.g. sun and sea – as well as in areas with comparative advantages in cultural amenities.

Finally, Map 2 and the accompanying Online Table A1 identify what we call “overperforming” and “underperforming” regions. Regional performance reflects a general national effect, and a regional effect, and thus they identify regions in each group according to whether they are above or below the national average for their respective Member State. These data deliver three major insights.

Map 2: Over-performers and underperformers (2001-2013)



Over-performers and under-performers

- underperformer
- overperformer
- not applicable

Source: Eurostat, DG REGIO

0 500 km

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First, strong regional effects are in evidence, with many EU regions performing better or worse than their national averages. This means that overall EU and national dynamics are not exclusively

driving regional performance and confirms that the regional level is a distinct and highly variegated scale of economic development with overall divergence processes at work. The regional question really is at the heart of Europe's economic future.

Second, as in the rest of the world, there is a core of leading regions in Europe, comprising a set of major metropolitan (often capital) regions in many countries and a few dynamic core areas in Benelux, southern Germany-Austria-northern Italy.

Third is a cautionary note on how to distinguish between over-performing and underperforming regions. There are some countries in the EU that are more evenly developed than others. In a high-income but evenly-developed country (relatively low inter-regional GDP variance), such as Austria, a map of underperformance or over-performance means less than a similar map for France, Spain, Italy or the UK. The wide incidence of underperforming regions reflects a high baseline level of variance and therefore translates, on the ground, to a worse relative performance in their weaker regions than in Austria.

3. THE FOUR GROUPS OF REGIONS: A SYNTHESIS

The very-high (VH) income group of regions is dominated by large metropolitan and capital city-regions and includes several additional regions, generally highly urbanized in the form of a network of cities (e.g. Rhine-Ruhr or Randstad Holland), specialized in high quality goods and services. Many of these regions are attracting population (with the noted exception of Germany), although some have high unemployment rates and underperformed since the beginning of the financial crisis (Dijkstra et al., 2015). Most of them have high productivity growth. Overall, this group of leading regions is generating more than its share of European wealth (Map 2).

The high-income (H) group shares many, but not all, characteristics of the VH group. These regions are less metropolitan or city-centred and somewhat less dynamic demographically. Their employment rates are high and many have satisfactory productivity growth. However, South-East England, Benelux, northern Italy and Catalonia are doing less well than many German members of the group. This means that the H group can be divided into two: a more innovative part and another less so.

The medium-income (M) group is vast and comprises most parts of northwestern Europe that remain outside the VH and H groups. There are two broad sub-groups within this category. The largest covers regions that have lost manufacturing jobs, which is reflected in stagnant or declining employment rates. Population growth is low or even in decline in some of these regions, so unemployment rates vary. Education levels – attainment of secondary and tertiary education – are below those of the H and VH groups. Overall, these are economically fragile regions, displaying a combination of declining manufacturing, unsatisfactory attainment of education and skills, and inadequate labour-force participation. The second sub-group stands out because it is experiencing population growth. Such in-migration brings income (via people-based fiscal transfers in the form of pensions and health benefits), and spending has a local multiplier effect, mainly in the demand for services. Labour-force participation, however, remains low. More importantly, the types of employment stimulated, in mostly non-tradeable local services, involve limited skill development, innovation potential, and export-ability. All this depresses the per-capita income benefit of such employment gains. However, there is a wide dispersion of productivity in services among regions and countries, with French M regions enjoying the highest levels (though with perhaps an employment-reducing effect).

The low-income (L) group consists of large swathes of eastern and southern Europe. These regions share some common characteristics in terms of low employment rates and poor quality of government, low investment in R&D and a relative lack of accessibility. They have also experienced divergent economic trajectories in recent years. This has led the European Commission (2017) in its *Lagging regions report* to distinguish between 'low-income' and 'low-growth' regions. Low-income regions are mainly located in central and eastern Europe and have a real GDP per head below 50% of the European average. Many of these regions have higher education levels than some of the southern

and western L group members, but have lost population: they are experiencing the consequences of their entry into both the EU and the world economy. Their skilled people have been out-migrating, generating a vicious circle of population and talent loss that is creating spatial traps for those who remain. Barriers to entrepreneurship and low levels of innovation are also limiting their participation in cross-EU value chains. Low-growth regions instead stretch along the southern fringe of the EU and “cover less-developed and transition regions (regions with GDP per capita up to 90% of the EU average) that did not converge to the EU average between the years 2000 and 2013 in Member States with a GDP per head in PPS below the EU average in 2013” (EU, 2017: 1). They have better endowments in infrastructure, but suffer from skill shortages and a lack of capacity within the economic fabric to produce and assimilate innovation. These different trajectories and challenges mean that the pursuit of effective policies would, in all likelihood, require different development strategies for low-income and low-growth regions.

The few western EU regions in the group – including West Wales and the Valleys or Tees Valley and Durham in the UK – are those with long-standing issues related to productivity, specialisation, skills and labour force participation. Today, they are characterised by educational deficiencies when compared to more prosperous parts of their own countries and the EU as a whole.

Overall, each group offers a distinctive set of attributes and near-term developmental constraints and opportunities; this is the basis for the place-sensitive policy approach we define below. But before doing so, it is important to review what theory has to say about such developmental inequalities and the mechanisms it identifies for reducing them.

4. THEORY: DOES IT OFFER A GUIDE ON HOW TO OVERCOME REGIONAL INEQUALITY?

Current regional disparities are the outcome of two groups of forces. The first is the long-cycle of development in the economic structure, consisting of a major wave of technological progress that began in the 1970s. This stimulated output based on cutting-edge technologies, finance and advanced services that depend on agglomeration economies and whose core non-routine jobs favour large metropolitan areas and draw from pools of skilled workers in high-turnover labour markets. This wave of technological change also reduced employment in many previously dominant manufacturing sectors through automation, and has cut the cost of business-to-business trade within their value chains, enabling industries to become more geographically dispersed (Levy and Murnane, 2005). These long-cycle technological changes have coupled with an expansion in world trade and a lowering of trade barriers. Together, these transformations discourage employment – especially quality employment – creation at some intermediate and, particularly, lower-skill echelons, whilst enhancing job opportunities for those with the highest skills. As different skill types have increasingly become concentrated in different places, recent trends have favoured metropolitan regions, often at the expense of intermediate and peripheral areas.

The second type of force is the long-cycle of regional evolutionary features, consisting of place-specific endowments of people and skills, firms and industries, formal and informal institutions, capacities for innovation, and their reaction to change. The changing structure of the economy interacts with the characteristics of regions to generate patterns of development. At certain points in the past, this interaction has provided strong opportunities for lifting less-developed regions upwards, in a process of inter-regional convergence. However, since the 1970s, and especially in the new millennium, it has led to divergence. This is because the current long wave of development facilitates the geographical concentration of the best jobs and most innovative activities. But it is also because migration between regions has slowed down, and certain kinds of ‘traps’ have emerged in the less-favoured regions, comprising a mixture of low incomes and skills, low labour-force participation, institutions that stifle development, and social dysfunction in the form of despair, withdrawal from economic life, and health problems.

These large-scale structural forces are generating a huge challenge to theory and policy. In an article dated 27 December 2016, *The Economist* observed that “orthodox economics has few answers

to the problem of regional inequality”. In this section, we identify the gaps in orthodox theory and, with the resulting insights, we highlight the elements of a policy framework that could provide some of these answers.

4.1 SHOULD WE FOCUS ON EFFICIENCY FIRST?

The importance of agglomeration economies

Traditional economic approaches based on neoclassical growth theory have mostly posited that policy intervention targeting less prosperous regions is not necessary. Perfect competition and factor mobility yield constant or diminishing returns to scale in large, wealthy regions, because of congestion and high land and labour costs. The expected outcome is diffusion of prosperity to other regions, generating either convergence in real incomes and opportunities, or at least some kind of maximisation of utilities through a best-possible geographical arbitrage of wages and amenities on the part of firms and households (Glaeser, 2008). It appears, however, that the functioning of market forces in the past few decades in Europe – including technological change, globalisation and European integration – have not led to improvements in economic performance for declining and less-dynamic areas, but rather to concentration of wealth in the H and VH groups. European integration has done little to alleviate within-country territorial differences (Dunford and Perrons, 1994; Dunford and Smith, 2000; Rodríguez-Pose and Fratesi, 2007; Cuadrado-Roura et al., 2016), which have worsened after the economic and financial crisis (Rodríguez-Pose and Fratesi, 2016).

Hence, there is a need look at territorial disparities and the trade-off between efficiency and equity from a different perspective. In this respect, a set of newer theories – endogenous growth, new economic geography (NEG) and evolutionary economic geography – are generating major questions about the dispersion processes at the heart of neoclassical growth theory, by demonstrating that agglomeration forces can be dominant in economic geography.

In Europe since the 1980s, the rise of new economy industries, such as IT, advanced services, finance and global markets for quality-oriented goods, *inter alia*, have strengthened agglomeration economies and the advantages of city-regions. With these agglomeration forces, migration shifted to cities, especially larger ones, reinforcing a talent divide between high-income places and other regions, in spite of national policies to diffuse educational opportunities spatially. This wave of economy-wide forces is still gathering strength and strong agglomeration economies keep on drawing in skilled labour and strengthening networked ecologies of innovation and production.

There is a consensus that greater agglomeration generates the positive externalities that lie behind the dynamism of large cities and regions and make them motors of economic growth (Fujita et al., 1999; Duranton and Puga, 2001). Agglomeration is also considered to lead to greater innovation (Cooke and Morgan, 1994; Iammarino, 2005) and to lower barriers and costs of knowledge sharing and transmission across individual and firm networks (Storper and Venables, 2004; Iammarino and McCann, 2010). Europe is no exception: large cities, often combining economic functions with political ones as capitals of their respective countries, have, despite a few exceptions, performed well.

Based on this evidence, spatially uneven development is often regarded as the price to pay for economy-wide productivity maximisation. That is the view posited in Glaeser’s *Triumph of the City* (Glaeser, 2011: 1): “Urban density provides the clearest path from poverty to prosperity”. As productivity increases and returns to innovative investment are higher in big cities than anywhere else (Combes et al., 2012), investing in metropolitan areas is deemed the best way to promote growth and create opportunities for individuals. This drives migration towards big cities resulting in: a) increasing density in large agglomerations, sparking additional positive externalities and growth; and b) creating more opportunities for people to leave smaller cities and less-developed regions. Abundant empirical evidence has been provided on the positive relationship between city size and productivity, innovativeness and entrepreneurship in advanced economies (Glaeser and Kerr, 2009; De la Roca and Puga, 2017).

This positive relationship today between urban density and productivity gives rise to an increasing split between large urban areas and other regions. From there, however, things get murkier. Among city-regions, productivity effects are not linearly linked to size (Iammarino and McCann, 2015). Across developed countries, the relationship between city size and productivity adopts a U-shaped form (OECD, 2006). This mixed evidence supports the idea that it is not just size, but other characteristics of cities that are increasingly selectively distributed – such as knowledge accumulation (Storper, 2013), creativity (Florida, 2005), innovation (Acs, 2002), cultural diversity (Lee and Nathan, 2010) and institutions (Storper et al., 2015) – which are equally important for competitive advantages and economic growth. In the USA, for example, the productivity of city-regions reaches a maximum at the 7-8 million level (San Francisco, Washington, Boston), before declining in the biggest city-regions such as New York or Los Angeles.

The European city-system has some additional specificities. The benefits of agglomeration across European countries are similar, albeit slightly smaller, to those found in the USA (Ciccone, 2002). Some wealthy countries perform very well without very large cities (e.g. Germany, the Nordics), while in others national performance often depends on very big cities (e.g. France, UK). Moreover, middle-sized cities play a more important role in the EU than in the other developed parts of the world (Dijkstra et al., 2015), and this pattern is compatible with high levels of economic development in many EU countries. The jury is therefore out on whether the benefits of agglomeration can be achieved through a more even distribution of middle-sized agglomerations, i.e. on the exact spatial layout and distribution of agglomeration benefits (Crescenzi et al., 2007, 2012), and this is an important element for any policy framework.

In most standard theory, uneven spatial development is seen as a price to be paid for better overall economic performance (aggregate productivity and income maximization). At this point, a second set of claims is introduced into this framework, which is that such a system also has spatial and social trickle-down (or diffusion) effects through knowledge spillovers to less-favoured regions and labour migration to more prosperous places. Unfortunately, these two mechanisms do not work as envisioned in the theoretical framework.

Knowledge spillovers

“When the economy moves from dispersion to agglomeration, innovation follows at a much faster pace. As a consequence, even those who stay put in the periphery are better off than under dispersion, provided that the growth effect triggered by the agglomeration is strong enough” (Fujita and Thisse, 2003: 121). This phrase captures a key element of NEG theories of growth: the compensation mechanism (both inter-personal and inter-regional) acting from spatially concentrated economic growth through the diffusion of knowledge or, as it is commonly known, spatial knowledge spillovers. Knowledge creation – often proxied by one partial formal input indicator, i.e. R&D – breeds inequality, while knowledge diffusion – through linkages and networks – spreads opportunities.

However, empirical evidence suggests that for the last decades spatial spillovers have been weaker than knowledge concentration, meaning that knowledge diffusion has not been strong enough to provide better opportunities for people remaining in lagging-behind regions (Martin and Sunley, 1998; Dunford and Smith, 2000). The strong weight economic theory attributes to R&D investment as an ‘input to growth’ has resulted in overestimating the role that such intangible investments can play in many regions (Iammarino and McCann, 2013; Lee and Rodríguez-Pose, 2013).

Research on knowledge spillovers has not yet fully identified the mechanisms by which the main knowledge flows occur across countries and regions (Breschi and Lissoni, 2001). Geographical proximity within and between regions (i.e. spatial interaction) per se does not automatically induce knowledge spillovers or innovation diffusion. Instead, it seems that additional conditions must be fulfilled, ranging from the existence of strong organisational channels (such as firms), to dense knowledge community networks and skills, for knowledge to travel (Breschi and Lissoni, 2001; Boschma, 2005; D’Este et al., 2013). Consequently, less dynamic cities and regions cannot benefit

from knowledge spillovers unless many types of transmission channels – cognitive, institutional, organisation and social – can be significantly enhanced (Boschma, 2005).

One key type of channel, the multinational corporation, has both centralising and diffusing effects on knowledge distribution. As Hymer (1972:124) argues, “geographical specialisation will come to reflect the hierarchy of corporate decision-making, and the occupational distribution of labour in a city or region will depend upon its function in the international economic system”. Cross-border corporate network-based organisation of production has contributed to both economic integration and isolation. Rising spatial (and individual) inequality due to the concentration of power and value creation in certain cities and regions in advanced economies has paired with the widespread diffusion of low-tier activities towards certain places in lagging-behind regions and developing countries (Iammarino and McCann, 2013, 2018; Crescenzi and Iammarino, 2017).

Thus, whilst trade diffuses routinized and codified (economically ubiquitous) knowledge, a hierarchy of knowledge creation and non-routine activities is becoming more evident. Knowledge that is not economically or geographically ubiquitous generates innovative rents and requires high-skilled employment to be both deployed and further developed. Agglomeration and hierarchies of regional systems (Cantwell and Iammarino, 2003), and greater divergence among groups of regions (Storper, 1997) are the result of these processes. Global value chains, in principle diffusion mechanisms, also strengthen localized impacts for specific types of workers that are exposed to offshoring and outsourcing, further spurring polarisation and divergence (Autor et al., 2013; Gagliardi et al., 2015).

Labour mobility

A second potential mechanism, expected both to even out divergence and enhance the trickle-down effects of agglomeration, is labour migration. In recent times, however, labour mobility has failed to bring about these predicted effects: a steep decline in internal low-skilled migration has been recorded in a number of European countries (e.g. Eurofound, 2015). Simultaneously, international low-skilled mobility in economic integrated areas, such as the EU or NAFTA, is becoming jeopardised by rising restrictions on people flows (Partridge et al., 2012; Molloy et al., 2014; Barslund et al., 2015).

A vigorous debate is emerging on the nature and causes of the migration slowdown. Its potential causes include: growing gaps in inter-regional house prices; double-income couples, resulting from higher female employment rates; job search at distance using ICT; and the changing nature of skills. While there are undoubtedly interactions between these potential causes, the changing nature of skills appears to be particularly important and, as yet, insufficiently studied. Recent research has affirmed that returns to education increasingly diverge across labour markets. Skill-biased technological change is driving the skilled to skilled regions, while movement by the less-skilled is increasingly constrained by barriers to moving or getting into prosperous regions (Diamond, 2016; Giannone, 2017). This has led some to call for rethinking the nature of skills in the new economy (Deming, 2015). While more formal skills are required than ever before for many jobs in the new economy, more experience-based skills are also needed and can only be acquired by ‘being there’ (De la Roca and Puga, 2017). New economy skills are more social and collaborative compared to manual jobs or routine industrial ones. This reasoning implies that even those individuals who succeed at formal schooling in less-developed regions are increasingly disadvantaged by their location. They are less apt to acquire the informal experience, knowledge and cues, and to build networks that create advantages for similarly educated individuals in the wealthier regions. If this is the case, then institutions in the wealthier regions can also give their students better overall capacities via networking and social cueing. We are a long way from a world with sufficient labour mobility to give the less skilled the opportunities of dynamic regions, or where the skilled are likely to take their knowledge to the less-prosperous ones.

Physical connectivity

Since at least the 1989 reform of the Structural Funds, European Cohesion Policy has invested considerable resources in preparing the EU's less-developed regions for greater integration and more competition. About half of the Structural Funds invested in the EU's less-developed regions has targeted infrastructure deficits, particularly those in transport infrastructure (Crescenzi and Rodríguez-Pose, 2012). This has greatly improved the physical connectivity of Europe's lagging areas, but the effort has not always translated into more jobs, greater productivity or economic growth. This is because increased connectivity raises aggregate attractiveness, but also reinforces differentials in attractiveness.

Connected places are not just better positioned to exploit their hitherto latent comparative advantages, but are also subject to the re-centralisation of resources and knowledge because of reduced transport costs to serve less densely-populated regions. Differences in capabilities and agglomeration effects among places is why, for example, a high-speed train line between two very unequal territories often reinforces centralisation and can lead to de-industrialisation, fewer locally provided services, and a decline in local commerce in areas that, *de facto*, become annexed hinterlands of the more powerful regions (Puga, 2002).

The power of centralisation effects over diffusion

We can summarise this discussion by noting that the current wave of development of the wider economy has weak diffusion mechanisms of the type that would be required to spread prosperity to other regions and bring about income convergence. In the middle of the 20th century, during the dynamic period following the recovery from II world war, diffusion mechanisms were stronger than they have been since 1980. This was because a set of technologies developed in the early 20th century based on mechanical engineering and electrical power became fully mature by the end of the war. As they gradually standardised, they underwent a long process of de-agglomeration, which benefited less-developed regions and activated inter-regional convergence. Decentralisation to regions with lower land and labour costs was facilitated by a fall in transportation and trade costs.

In contrast, during the current wave of technological change and globalisation of the world economy, dating from the technology shocks of the 1980s and the transformations of the pre-existing geo-political and economic cold war-order from the end of the 1980s, such convergence mechanisms have been weak by historical standards. Even as the agglomerated urban activities of the new economy are maturing, they become both very lean in terms of job creation and tend to leapfrog over Europe's less-developed regions to emerging and developing countries. As we have pointed out, this structural situation is only weakly compensated by knowledge (and hence entrepreneurship) diffusion and labour migration. Consequently, as the *Economist* stressed, theories that hold that agglomeration-driven economic development produce sufficient spatial and social trickle-down mechanisms are not capable of explaining the evident rise and persistence of inter-regional inequality in today's EU.

4.2 SHOULD WE FOCUS ON EQUITY INSTEAD?

In contrast to the agglomeration-driven vision of economic growth from New Economic Geography, the neo-classical growth theories underscore the eventual appearance of diminishing returns to spatial concentration. There has been no shortage of attention in urban economic research given to the potentially negative externalities related to growth in agglomerations: congestion, pollution and high land costs have featured prominently (Fujita and Krugman, 2004). In the standard neo-classical formulation, concentration costs naturally generate the de-agglomeration forces necessary to even out the landscape of development, in either real incomes or total utility terms (Glaeser, 2008).

However, what is one of the most prominent negative externality has been largely overlooked (or dismissed as a temporary stage in the quest for greater aggregate economic efficiency): rising territorial inequality. As seen in the evidence presented in Section 2 above, within-country inequality in the EU has continued to grow (Rodríguez-Pose, 1999; Puga, 2002; Charron, 2016). The

consequences of such inequality are economic, social and political: in Europe, it is provoking increasingly virulent societal tensions. Uneven development has been a key factor behind the rise in populism all over Europe (Ballas et al., 2017) and has been a fundamental driver in the British vote in favour of Brexit (McCann, 2016; Jessop, 2017; MacKinnon, 2017; Toly, 2017). Poorer regions have growing social, health and behavioural pathologies that become ingrained and difficult to improve (Chetty et al., 2014; Autor et al., 2017). In particular, the uptake of education in less favoured regions can be unresponsive to supply.

Traditional policy responses to persistent territorial inequality or underdevelopment have emphasised territorial ‘equity,’ and this type of approach is harshly criticised by tenants of agglomeration-driven approaches to economic development. The term ‘equity’ is polysemic, but we take it here to signify approaches aimed at redistributing economic activity, under the assumption that such policy-driven redistribution can be achieved and that it can elicit income convergence among regions. This definition of ‘equity-based’ policies implies some kind of forced ‘spatial rebalancing’, whereby the development of low- and middle-income regions is a consequence of attracting development away from high-income areas (Martin, 2015). Many national governments around the world – from the 1950s through the 1970s – attempted such redistributive policy, in the form of mandatory locational controls designed to provoke de-agglomeration, or tried to create growth poles through massive state investment to foster agglomerations in less-developed regions. But this form “of spatial planning became strewn with failed or abandoned growth-pole strategies” (Parr, 2015: 386).

In the past, such policies have generally been ineffective in combating market forces for spatial concentration. For example, the French Plan never succeeded in reducing the share of GDP and population of Greater Paris. The health of outlying regions in France during the *Trentes Glorieuses* was not based on a reallocation of production away from the Île-de-France, but rather on the nature of the economy in the post-war period, where routine manufacturing production still generated considerable high-wage employment (Ancien, 2005). Spatial redistribution-cum-equity policies have also been weak in stimulating endogenous development in other parts of Europe, such as the Italian Mezzogiorno (Polverari, 2013) or, more recently, in the UK (Martin, 2015). In their place, however, are more recent notions of redistributive spatial-equity policies, consisting of public investments directed towards less-favoured regions, as well as people-based subsidies based on a formula that favours certain categories of lower-income populations and, by extension, lower-income regions.

5. POLICY: BEYOND THE PLACE-PEOPLE DIVIDE

Following the conventions of theory, development policies can be divided into two types, underlining either efficiency or equity. So-called spatially-blind frameworks focus on efficiency, in the form of maximising agglomeration, which they assume boosts overall output. These policies, however, offer little to address the problems of declining and lagging-behind areas, restricting themselves to temporary compensation to such regions as a waystation to out-migration and reconversion (Pike et al., 2007; 2017). Such spatially-blind (often euphemistically labelled people-based) policy approaches have been advocated on the assumption that, by helping people to become skilled or entrepreneurial, geographical labour mobility and knowledge spillovers will counterbalance the negative mechanisms of agglomeration, leading to the diffusion of innovation and territorial convergence.

The alternative type of policy approach stresses coordinated place-based support, as a means toward achieving inter-territorial equity. This type of approach rests on the assumption that less-developed areas can always catch up to wealthier regions, if provided with the right endowments. However, as we argued above, empirical evidence shows that, more often than not, there is labour mobility away from assisted regions and limited innovation diffusion to them. Such strong market mechanisms would render much place-based policy ineffective. Due to persistent out-migration and low local opportunities, a process of social marginalisation – with deteriorating family incomes, low educational attainment, and growing social pathologies – can be set into motion in these regions, compounding and making more persistent their poor economic fundamentals. In this context, place-based policies frequently function more as social rather than economic development policies.

Too much focus on efficiency through agglomeration may therefore enhance territorial inequity (which, in turn, undermines efficiency), while too much focus on equity through place-based support (without development) undermines overall economic efficiency. Hence, there is a need to pursue efficiency and equity simultaneously and neither spatially-blind nor place-based policies, on their own, are capable of doing so.

On the basis of this discussion, a third type of development strategy is required. Rather than the two extremes of much inherited theory – a mechanical notion of ‘equity’ through territorial redistribution, or an ‘all-agglomeration’ strategy – the alternative is what we call ‘distributed development’. This term refers to an innovative, *place-sensitive* development policy approach that counters the potentially negative spiral of geographically restricted development in three ways. Its overall goal is for more and more regions to have non-routine (innovative) functions in their economic mix. We maintain that economic development policy should be both sensitive to the need for agglomeration and the need for it to occur in as many places as possible, because agglomeration can maximize the total future innovation output of the economy in the aggregate (Duranton and Puga, 2001). At first glance, this claim seems to be opposed to the finding that efficiency and agglomeration go together. But dynamic efficiency, or maximizing productivity over the long run, is different from a snapshot of productivity maximization at any moment in time. Future innovation is inherently uncertain, both in its content and in the contexts (social and spatial) from which it emerges, even if existing agglomerations often have strong ‘learning’ properties. Although economic development officials dream of being able to define long-term strategies, they usually fail in this task. Predicting scientific discoveries, technological breakthroughs, and all the tweaks that transform our lives is nigh impossible. Moreover, successful entrepreneurs make their own luck, adjusting and adapting to survive. Instead of being the result of far-sighted planning, entrepreneurial activity is messy, adaptive and unpredictable. The biggest problem is that it is difficult to anticipate which technologies will pay-off. By contrast, the crucial role of ‘second-mover advantages’ and ‘technology latecomers’ for the enhancement of localised entrepreneurial capabilities and structural change has long been emphasised (von Tunzelmann and Wang, 2007). Hence, policy for long-term innovation and productivity growth needs to be based on hedging bets by promoting broad-based capacities for social, institutional and business innovation, as well as mastering second-mover processes that diffuse innovation.

The geographical correlate of this fundamental point is for economic development strategy to enable as many actors and regions as possible to participate productively in the economy in a way that their capacities can expand. The gateway conditions to such participation are improving the quality of life and well-being of all, which is the minimum for ensuring that agents have the capabilities and freedom to achieve this. Diversity of capable agents and territories is the most powerful tool for success in the open probability game of innovation and economic creativity (Kemeny and Cooke, 2017; Feldman and Storper, 2018). In the light of this, policymakers cannot afford to wait for perfect predictability and an error-free world. As Kline and Moretti (2014: 634) conclude: “Second best may, in practice, be very attractive relative to the status quo.” And second best may be first best in the long run, if it promotes those widespread capacities that are the basis for flourishing in ways that cannot be predicted in the short-run. Moreover, by distributing the open-ended capabilities for future development across as many territories as possible, and hence reaching as much of the population as possible, not only will the probability for prosperity of places be enhanced, but so will the potential for more fluid migration of people to opportunity and the avoidance of spatial traps for them.

5.1 INSTITUTIONS: A KEY OBSTACLE TO DISTRIBUTED DEVELOPMENT

The missing link in development intervention is institutional quality. Institutions are the rules of the game in a society, and they can be understood in the broad sense as including formal organisations, government and laws, as well as a variety of informal norms, conventions and collective beliefs (North, 1990: 477; Alesina and Guiliano, 2015). It has now been widely demonstrated that institutions play a key role in determining the development potential of any territory (Acemoglu and Johnson 2012). Many institutions are place-based and place-specific.

Recent research has demonstrated that weak institutions, in general, and poor-quality government, in particular, constitute a crucial obstacle to development (Rodríguez-Pose, 2013). Poor institutions affect essential growth-promoting factors, such as the returns on European Cohesion policies (Rodríguez-Pose and Garcilazo, 2015), competitiveness (Annoni and Dijkstra, 2013), and undermine entrepreneurship (Nistotskaya et al., 2015) and the capacity to innovate (Rodríguez-Pose and Di Cataldo, 2015). Moreover, poor institutions – ineffective local governments, limits in voice and accountability as well as corruption – steer public investment towards projects with dubious economic and/or social returns (Crescenzi et al., 2016) and have heavily shaped the location of multinationals' productive capital in the EU (Ascani et al., 2016).

Although measuring institutions is notoriously difficult, it has become increasingly clear that, in the case of Europe, many regions and cities which are either lagging behind or declining have weaker 'good' institutions – such as those that promote entrepreneurship and confidence in the future – and often have more robust 'bad' institutions – such as those that promote rent-seeking, corruption, or lack of confidence – than their more developed counterparts (Charron et al., 2014). This has led to a proliferation of white elephants that may have responded to short-term electoral or private gains, but which, in the medium-term, have contributed little to addressing the lack of opportunity in lagging and declining areas.

It follows that if institutional quality cannot be improved, regions will not capture waves of economic possibilities as they unfold. While a country like Estonia has witnessed rapid improvements in government quality associated with fast economic growth, a dearth of institutional enhancements in southern Italy or in Greece has truncated their economic development prospects. Good institutions are also essential for the promotion of low-skilled jobs and for reducing social exclusion (Di Cataldo and Rodríguez-Pose, 2017). Improving government capacity, enhancing transparency and accountability, and tackling endemic corruption are among the institutional reforms required to overcome development traps. Such reforms, though noted in classics of under-development theory and research, have received relatively little regional policy attention in the EU.

5.2 PLACE-SENSITIVE DISTRIBUTED DEVELOPMENT POLICY

In light of the discussion above, an approach that goes beyond the people-place policy divide is needed. Such a framework would aim to distribute development as widely as possible and maximise development outcomes everywhere, while eschewing any mechanical goal of equity-as-convergence. It is place-sensitive, rather than place-based, in the sense that the specific starting point and mix of instruments needed to distribute development will be different for each group of economies. We label such an approach 'place-sensitive distributed development policy' (PSDDP). In what follows, we illustrate the notion of place-sensitive distributed development by briefly considering each group of regional economies.

Place-sensitive strategy for very-high-income regions: Regions in the VH group are challenged to maintain their specialisation in high-wage activities in the face of a changing wider landscape of comparative advantages. Specifically, they must out-run two forces: one is that high-wage activities at one moment in time may become progressively more widespread, routinized and hence permit the arrival of imitators who lower their wages. The second factor is that as innovative sectors mature they spread out geographically, meaning that leading regions no longer have a lock on them. The richest regions can thus only maintain their prosperity through sectoral succession (replacing old activities with new ones on the technological frontier) or by continuing to push the edge of innovation.

Place-sensitive strategy for high-income regions: The issues for the H group are different more in degree than nature from those of the VH group; the H economies are more vulnerable from below to having their advantages overlap with the medium-income regions because their technological distance and innovation-intensity have smaller gaps to much cheaper regions. The H group is also vulnerable to standardisation of the products they make (product cycles, maturity), because they are often specialised in sectors or tasks that are more technologically mature than those of the VH

regions. But this need not be fatal: it depends on the capacity of the H group's firms to generate innovations within their areas of economic specialisation or to move to areas linked within the economy. A key way that H regions do so is through incremental innovation allowing them to dominate the high-quality segments and upstream tasks in rather mature industries.

Both the VH group and H group contain global metropolitan centres and dynamic city-regions. For both, place-sensitive approaches must incorporate some common elements: cutting-edge technology strategies, science-led and R&D-based innovation, outward internationalization of both upstream and downstream production functions (e.g. R&D, logistics), business-university research collaboration, artistic creativity, forward-looking postgraduate education, environmental and anti-congestion measures, high openness to international flows of human capital, strong synergies between public and private actors in supporting long-term investments in new and uncertain technological areas, and urban environments that nurture cultural and ethnic diversity.

Place-sensitive strategy for the low-income regions: At the other end of the spectrum, low-income regions suffer from limited skills and assets in technology and organizations and relatively low-cost. As economic activities become more routinized and seek out lower cost locations, L regions may offer just this. Some L regions can launch development by making land and labour available at low cost – this was classically known as the ‘advantage of backwardness’ (Gerschenkron, 1957) However, in the early 21st century, the routinised activities that may undergo dispersal to these regions through European or global value chains economise on labour through capital intensification, potentially generating ‘premature deindustrialisation’ (Rodrik, 2016). This can be combined with ongoing offshoring of the most labour-intensive activities to developing countries. Hence, the advantages of backwardness are limited and fragile in today's world. Furthermore, the types of backwardness in EU regions take a wide variety of forms, with important differences between the southern and eastern EU peripheries: emerging industrial regions in eastern EU sharply differ from the relatively disconnected corporatist peripheries of southern Europe.

L-group regions face two additional challenges. The first is whether they can mobilise their natural advantages by making their labour and land available at low cost and high efficiency. This depends on having connectivity, functioning state capacity, and adequate labour-force skills. L regions therefore have no natural advantage of backwardness; they must transform the underlying conditions in ways that make them attractive. The problem is that many L cities and regions are not particularly attractive for business. Their key supply factor – labour – is not fully mobilised, as reflected in low labour-force participation or reservation-wage levels that exceed their relative productivity. In addition, they generally have limited intra-regional and external networks and are unlikely to contain specialised clusters or industrial districts. Most face institutional weaknesses or dysfunctions in government and governance. Finally, although accessibility has improved through investment in transport infrastructure, lagging-behind regions remain far better connected to core cities than to other less-developed areas.

In the absence of effective place-sensitive strategies, European integration can accelerate talent- and youth-loss to higher-income places, activating a negative demographic dynamic, which will further undermine their potential for economic and social creativity. If their populations age due to out-migration of the young, they will also face a long-term decline in labour-force participation. All these forces may combine to limit their size and ability to offer scale in infrastructure, logistics and supply. All in all, the EU's low-income regions have a narrow window in the current context in which to exploit their initial advantages and move into the middle-income group; effectively, they are in a race against the clock.

Winning this race requires a broad range of activities: investment in infrastructure, with an accent on intra-periphery connections; active labour market policies and reforms to increase labour-force participation, particularly among women and young; creating start-ups and the return of well-educated human capital to modernise industry and local governance structures; education reforms ensuring quality at primary and secondary levels and greater emphasis on foreign languages; technical and vocational training and retraining; job-skills matching based on the use of both qualifications and skills; university-industry linkages to provide the skills required by the local production structure and

for innovation absorption; identification of complementarities across existing productive capacity (i.e. across agriculture, manufacturing and services) to create ‘regional integrated policy platforms’ (Cooke, 2007); and support to social networks and cultures of risk-taking and openness. Improvements in government – from tackling red-tape and promoting e-government to encouraging transparency and accountability and eradicating corruption – along with strengthening civil society should be central to and cut across all the components of place-sensitive development strategies for such regions.

Place-sensitive strategies for middle-income regions: In international development economics, there is a key development bottleneck known as the ‘middle income trap’. Successful low-income countries can enjoy high growth rates for a certain number of years, before experiencing a long-term slowdown (Kharas and Kohli, 2011; Eichengreen et al., 2013; Vivarelli, 2016). This is because their labour costs rise to the point where other regions become more attractive for labour-intensive or low-skill activities. Yet at the same time, such countries lack the advantages of richer countries in terms of productivity, organisations and business ecosystems, infrastructure, home markets and, critically, inventiveness and skills. They are trapped between two worlds. Thus, M regions have some of the most delicate knife-edge developmental challenges: they are neither as productive nor as innovative as the high- and very-high-income regions, but their labour and land prices are higher than those in low-income regions.

Moving up requires higher investment per worker than in the early stages of development, as more skills are needed. Raising firm quality also demands more investment in hardware and orgware. In fact, a rising share of savings and capital formation is required to invest in the creation of a growth process that relies on inputs – technology, education, infrastructure, urbanisation – that imply higher unit investment costs compared to the low-income phase of economic development. This investment needs arise in tandem with the natural demand on the part of the population for greater per capita consumption, as the collective reward for their hard work in the low-income stage.

Europe has many such regions and different types can be distinguished: traditional slow-growing industrial peripheries, ageing and declining industrial areas, and consumer-oriented amenity-based regions with weak tradeable specialisations. In some of the M group slow-growing regions of southern Europe, poor-quality government, pervasive corruption, collusion and lack of trust are more of a barrier for development than asset shortage. The key goal has to be increasing the productivity of individuals and systems by enhancing education and labour-force participation, and upgrading firms’ capacity. The historical aversion to risk, poor entrepreneurship and rent-seeking behaviour through the public sector all require particular attention. Indeed, many such regions do not suffer from a shortage of educational opportunity (supply), but rather from a poor rate of uptake of education, suggesting that incentives and motivation are missing. Institutional improvement, and not just education and training expansion, is crucial to improving the incentives for skilling, entrepreneurship and heightened hopes and expectations.

Some ageing and declining industrial areas in France, northern Italy and northern Spain have good-quality government but suffer from skill-mismatch to the current economy, as well as degraded amenity and residential conditions, combined with deepening social problems due to the despair attendant on long-term decline, and higher barriers to outmigration. Yet their reservation wages – i.e. the lowest wage rate at which a worker will take a specific job – make them poor candidates for competition with low-income regions, whether in Europe or abroad. Though these are difficult conditions to overcome, industrial reconversion in Scandinavia and in certain parts of East Germany give reason for hope. A *place-sensitive* strategy for these regions would stress significant investments in re-skilling (along the lines of the Danish flexicurity system), combined with increasing both the attractiveness of selected inward capital flows and participation in global production and value chains networks, establishing knowledge links through university-industry problem-solving collaboration, and actively promoting internationalisation for innovation projects. In such regions, fraying social capital needs to be repaired, through re-creation of networks of workers, government, universities, entrepreneurs and investors to overcome the mistrust that comes from historically stratified conflict-ridden class relations inherited from the period of their initial industrialisation.

6. CONCLUSION: THE DISTINCTIVE CONTRIBUTION OF THE PLACE-SENSITIVE DISTRIBUTED DEVELOPMENT FRAMEWORK

There are many ideas for policy reform currently embodied in the ongoing updating of EU economic development frameworks. The Lisbon Agenda and the Europe 2020 Strategy have been intended to make Europe the world's leading innovation economy; smart specialisation strategies for regions correctly emphasise that every economy requires core specialisations that enable it to trade on growth-stimulating terms with the rest of the world (McCann and Ortega-Argilés, 2015); structural funds promote more efficient connectivity and infrastructure improvements; commitment to basic European principles of freedom and human rights symbiotically links, ultimately, to good, transparent and non-corrupt government.

The place-sensitive distributed development approach we argue for here is consistent with all these frameworks, but modifies them in two ways. The first is based on realism about what factor mobility in the context of European integration can do for spreading wealth. While factor mobility is important, there are such significant agglomeration effects generated by it that it will not, in and of itself, spread prosperity sufficiently. European integration, moreover, tends to make knowledge and highly-skilled people concentrate in the winning places, creating spatial traps for others. The second limitation follows directly from this analytical framework: Europe-wide place-neutral or general-purpose policies cannot, in and of themselves, address the problems of spatially uneven development.

This is why policies must be place-sensitive in the way we have defined. The specific mix and weight of instruments need to be tailored to the structural prospects of different kinds of European regions. Place-sensitivity modifies the near-term way in which smart specialisation, structural funds, innovation strategies and institutional reforms are undertaken in the different regional groups. The overarching concept thus requires context-dependent integrations of the instruments to fit the near- and middle-term realistic prospects of different groups and sub-groups, knowing that these prospects and challenges are different for each of them. This pattern of divergent development is not a simple core-periphery geography, but rather one of structurally different groups of regional economies.

At the same time, many existing place-based approaches have become mostly band-aids for failing economic processes, as they do not mobilise the under-utilised human and other resources of the less favoured regions. With the dis-aggregation of development realities that we presented above, we draw a distinction between place-based and place-sensitivity as a theoretical concept behind policy. The ultimate goal of place-sensitive distributed development is to combat the under-utilisation of regions' people and resources, so as to distribute development more widely. Unlike standard all-agglomeration and all-mobility models, our theoretical framework aims to maximise the aggregate potential of the EU economy by un-tapping the potential output of all its regions, taking account of barriers to people mobility and to spreading employment, and spatial traps that have emerged. We placed particular emphasis on the middle-income trap, which is widespread in the EU's regions. Indeed, this represents perhaps the hardest challenge for policy: identifying M regions' actual needs and potential opportunities between those of the most successful regions, which are indeed sources of wealth for the whole EU economy, and the large and diverse group of the more disconnected and disillusioned peripheries.

We limited ourselves to establishing the case for a place-sensitive distributed development approach through theory and evidence and policy critique and reformulation in this article. Hence, we have not gone into detail concerning how such an approach for each group should precisely coordinate top-down mission-oriented measures and bottom-up capability-building programmes, as well as integrate tools across different policy areas, and set up the metrics for success and failure that place-sensitive approaches require. That is a task best left for another article.

By redefining the basis for how to deal with uneven development at the centre of the policy effort, Europe can start to redress some of the economic, social and political challenges which have gradually eroded its capacity to lead at the global scale and which have become all too evident as a source of social division and political disenchantment in recent years.

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Table A1: List of overperforming and underperforming regions

		Regional GDP per head, 2014 as EU Index	National GDP per head, 2014 as EU Index
Overperforming NUTS 2 regions (regional GDP per head > national GDP per head)			
DE60	Hamburg	206	126
SK01	Bratislavský kraj	186	77
DE21	Oberbayern	179	126
FR10	Île de France	178	107
SE11	Stockholm	172	123
UKM5	North-eastern Scotland	164	109
BE00	Brussels and regions covered by its commuting zone	163	118
NL11	Groningen	163	131
DE71	Darmstadt	163	126
DE11	Stuttgart	162	126
DE50	Bremen	161	126
DK01	Hovedstaden	157	125
NL31	Utrecht	154	131
NL00	Amsterdam and regions covered by its commuting zone	153	131
AT32	Salzburg	152	129
IE02	Southern and Eastern	150	134
UKJ1	Berkshire, Buckinghamshire and Oxfordshire	149	109
ITH1	Provincia Autonoma di Bolzano/Bozen	144	96
FI1B	Helsinki-Uusimaa	144	110
UK00	London and regions covered by its commuting zone	141	109
DE12	Karlsruhe	140	126
AT34	Vorarlberg	139	129
AT33	Tirol	138	129
BE21	Prov. Antwerpen	138	118
FI20	Åland	137	110
DE91	Braunschweig	136	126
DE14	Tübingen	136	126
DE25	Mittelfranken	135	126
DEA1	Düsseldorf	134	126
NL41	Noord-Brabant	134	131
ITC2	Valle d'Aosta/Vallée d'Aoste	133	96
AT00	Vienna and regions covered by its commuting zone	133	129
DEA2	Köln	132	126
AT31	Oberösterreich	132	129

NL33	Zuid-Holland	131	131
RO32	Bucuresti-Ilo	129	55
DE23	Oberpfalz	128	126
DE26	Unterfranken	127	126
ITC4	Lombardia	126	96
ES30	Comunidad de Madrid	125	91
CZ00	Praha and regions covered by its commuting zone	124	84
UKD6	Cheshire	123	109
ITH2	Provincia Autonoma di Trento	123	96
ES21	País Vasco	119	91
ITH5	Emilia-Romagna	117	96
UKJ2	Surrey, East and West Sussex	115	109
ITI4	Lazio	114	96
ES22	Comunidad Foral de Navarra	113	91
UKK1	Gloucestershire, Wiltshire and Bristol/Bath area	112	109
UKJ3	Hampshire and Isle of Wight	112	109
PL12	Mazowieckie	108	68
ITH3	Veneto	108	96
ES51	Cataluña	108	91
HU10	Közép-Magyarország	107	68
PT17	Área Metropolitana de Lisboa	106	78
ITI1	Toscana	104	96
ITC3	Liguria	104	96
ITH4	Friuli-Venezia Giulia	101	96
ES24	Aragón	100	91
ITC1	Piemonte	100	96
ES23	La Rioja	100	91
EL30	Attiki	99	72
SI04	Zahodna Slovenija	98	82
ES53	Illes Balears	95	91
EL42	Notio Aigaio	80	72
PL51	Dolnoslaskie	76	68
BG41	Yugozapaden	75	47
PL41	Wielkopolskie	73	68
HU22	Nyugat-Dunántúl	71	68
PL22	Slaskie	70	68
HR04	Kontinentalna Hrvatska	60	59
RO42	Vest	58	55

Underperforming NUTS 2 regions (regional GDP per head < national GDP per head)			
DE27	Schwaben	125	126
DE13	Freiburg	122	126
DEA4	Detmold	122	126
DE22	Niederbayern	121	126
DE92	Hannover	121	126
DEB3	Rheinhausen-Pfalz	119	126
DEC0	Saarland	119	126
SE23	Västsverige	118	123
DE73	Kassel	118	126
AT22	Steiermark	116	129
BE25	Prov. West-Vlaanderen	115	118
DE24	Oberfranken	114	126
SE33	Övre Norrland	114	123
DEA5	Arnsberg	113	126
DK03	Syddanmark	112	125
DK04	Midtjylland	112	125
DE94	Weser-Ems	110	126
NL22	Gelderland	110	131
NL42	Limburg (NL)	109	131
DEA3	Münster	109	126
DE72	Gießen	109	126
BE23	Prov. Oost-Vlaanderen	108	118
AT21	Kärnten	108	129
SE32	Mellersta Norrland	107	123
DK05	Nordjylland	107	125
NL21	Overijssel	106	131
DEB1	Koblenz	106	126
DE00	Berlin and regions covered by its commuting zone	106	126
FR71	Rhône-Alpes	106	107
SE12	Östra Mellansverige	106	123
SE22	Sydsverige	105	123
DEF0	Schleswig-Holstein	104	126
SE21	Småland med öarna	104	123
DED5	Leipzig	103	126
FR82	Provence-Alpes-Côte d'Azur	102	107
UKH1	East Anglia	101	109
NL34	Zeeland	100	131

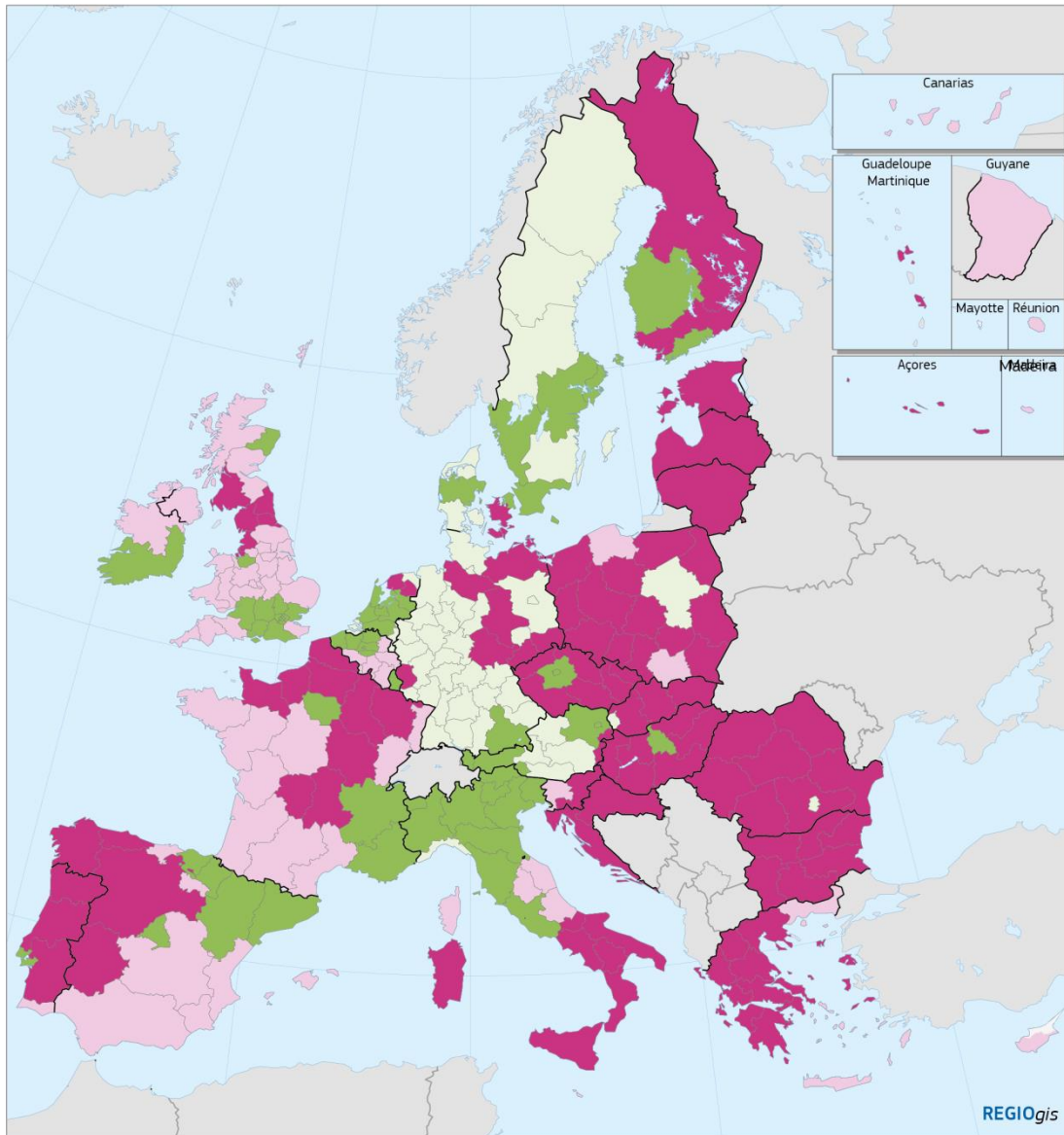
SE31	Norra Mellansverige	99	123
DEB2	Trier	99	126
FI19	Länsi-Suomi	99	110
UKM2	Eastern Scotland	99	109
BE22	Prov. Limburg (BE)	98	118
UKE2	North Yorkshire	98	109
UKG1	Herefordshire, Worcestershire and Warwickshire	97	109
FI1C	Etelä-Suomi	97	110
FR42	Alsace	97	107
FR62	Midi-Pyrénées	96	107
UKF2	Leicestershire, Rutland and Northamptonshire	96	109
FR51	Pays de la Loire	95	107
DED2	Dresden	95	126
UKD1	Cumbria	94	109
NL13	Drenthe	94	131
FR21	Champagne-Ardenne	93	107
UKM6	Highlands and Islands	93	109
NL12	Friesland (NL)	93	131
FR23	Haute-Normandie	93	107
ITI3	Marche	92	96
FR61	Aquitaine	92	107
UKD3	Greater Manchester	92	109
FI1D	Pohjois- ja Itä-Suomi	91	110
UKM3	South Western Scotland	91	109
UKE4	West Yorkshire	91	109
UKL2	East Wales	90	109
UKK2	Dorset and Somerset	90	109
FR26	Bourgogne	90	107
FR83	Corse	89	107
AT11	Burgenland (AT)	89	129
FR52	Bretagne	88	107
IE01	Border, Midland and Western	88	134
FR24	Centre	88	107
DEG0	Thüringen	88	126
DE93	Lüneburg	88	126
UKJ4	Kent	88	109
DED4	Chemnitz	87	126
UKF1	Derbyshire and Nottinghamshire	87	109

ITI2	Umbria	87	96
DEE0	Sachsen-Anhalt	87	126
FR53	Poitou-Charentes	87	107
BE33	Prov. Liège	87	118
UKG3	West Midlands	86	109
MT00	Malta	86	86
ES41	Castilla y León	86	91
UKK4	Devon	85	109
DK02	Sjælland	85	125
FR72	Auvergne	85	107
FR25	Basse-Normandie	85	107
FR30	Nord-Pas-de-Calais	85	107
DE80	Mecklenburg-Vorpommern	84	126
ITF1	Abruzzo	84	96
UKC2	Northumberland and Tyne and Wear	84	109
BE35	Prov. Namur	83	118
UKE1	East Yorkshire and Northern Lincolnshire	83	109
ES13	Cantabria	82	91
UKG2	Shropshire and Staffordshire	82	109
UKD4	Lancashire	82	109
UKN0	Northern Ireland	82	109
UKD7	Merseyside	81	109
UKF3	Lincolnshire	81	109
FR81	Languedoc-Roussillon	81	107
ES12	Principado de Asturias	80	91
ES52	Comunidad Valenciana	80	91
FR63	Limousin	80	107
ES11	Galicia	80	91
FR41	Lorraine	79	107
CZ06	Jihovýchod	79	84
FR22	Picardie	78	107
ES70	Canarias	78	91
PT15	Algarve	78	78
FR43	Franche-Comté	77	107
FRA2	Martinique	77	107
BE34	Prov. Luxembourg (BE)	76	118
BE32	Prov. Hainaut	76	118
UKE3	South Yorkshire	76	109

CZ03	Jihozápad	76	84
ES63	Ciudad Autónoma de Ceuta	76	91
UKK3	Cornwall and Isles of Scilly	75	109
ITF2	Molise	75	96
ES62	Región de Murcia	75	91
UKC1	Tees Valley and Durham	74	109
PT30	Região Autónoma da Madeira	73	78
FRA1	Guadeloupe	73	107
ITG2	Sardegna	72	96
SK02	Západné Slovensko	72	77
ES42	Castilla-La Mancha	72	91
PT20	Região Autónoma dos Açores	71	78
CZ08	Moravskoslezsko	70	84
PT18	Alentejo	70	78
CZ07	Střední Morava	70	84
FRA4	La Réunion	70	107
CZ05	Severovýchod	70	84
ITF5	Basilicata	69	96
UKL1	West Wales and The Valleys	69	109
SI03	Vzhodna Slovenija	68	82
ES64	Ciudad Autónoma de Melilla	68	91
ES61	Andalucía	67	91
PT16	Centro (PT)	67	78
EL62	Ionia Nisia	67	72
EL53	Dytiki Makedonia	66	72
PT11	Norte	65	78
PL63	Pomorskie	64	68
PL11	Lódzkie	63	68
ES43	Extremadura	63	91
EL43	Kriti	63	72
ITF4	Puglia	63	96
CZ04	Severozápad	63	84
ITG1	Sicilia	62	96
EL64	Sterea Ellada	61	72
HU21	Közép-Dunántúl	61	68
SK03	Stredné Slovensko	61	77
ITF3	Campania	61	96
PL21	Malopolskie	60	68

ITF6	Calabria	59	96
FRA3	Guyane	58	107
EL65	Peloponnisos	58	72
EL41	Voreio Aigaio	57	72
PL43	Lubuskie	57	68
PL42	Zachodniopomorskie	57	68
HR03	Jadranska Hrvatska	57	59
EL52	Kentriki Makedonia	56	72
PL61	Kujawsko-Pomorskie	55	68
EL61	Thessalia	55	72
PL52	Opolskie	55	68
EL63	Dytiki Ellada	54	72
SK04	Východné Slovensko	53	77
RO12	Centru	52	55
EL54	Ipeiros	51	72
EL51	Anatoliki Makedonia, Thraki	50	72
RO22	Sud-Est	50	55
PL33	Swietokrzyskie	49	68
PL34	Podlaskie	49	68
PL62	Warminsko-Mazurskie	48	68
PL32	Podkarpackie	48	68
RO11	Nord-Vest	48	55
HU33	Dél-Alföld	47	68
PL31	Lubelskie	47	68
HU23	Dél-Dunántúl	45	68
RO31	Sud - Muntenia	43	55
HU32	Észak-Alföld	43	68
HU31	Észak-Magyarország	42	68
RO41	Sud-Vest Oltenia	41	55
BG34	Yugoiztochen	40	47
BG33	Severoiztochen	39	47
RO21	Nord-Est	34	55
BG32	Severen tsentralen	34	47
BG42	Yuzhen tsentralen	32	47
FRA5	Mayotte	31	107
BG31	Severozapaden	30	47

Map A1: GDP per head (2013) vs. population growth rate (2001-13)



GDP per head (2013) vs. growth rate of population (2001-2013)

High and Low as compared to EU average

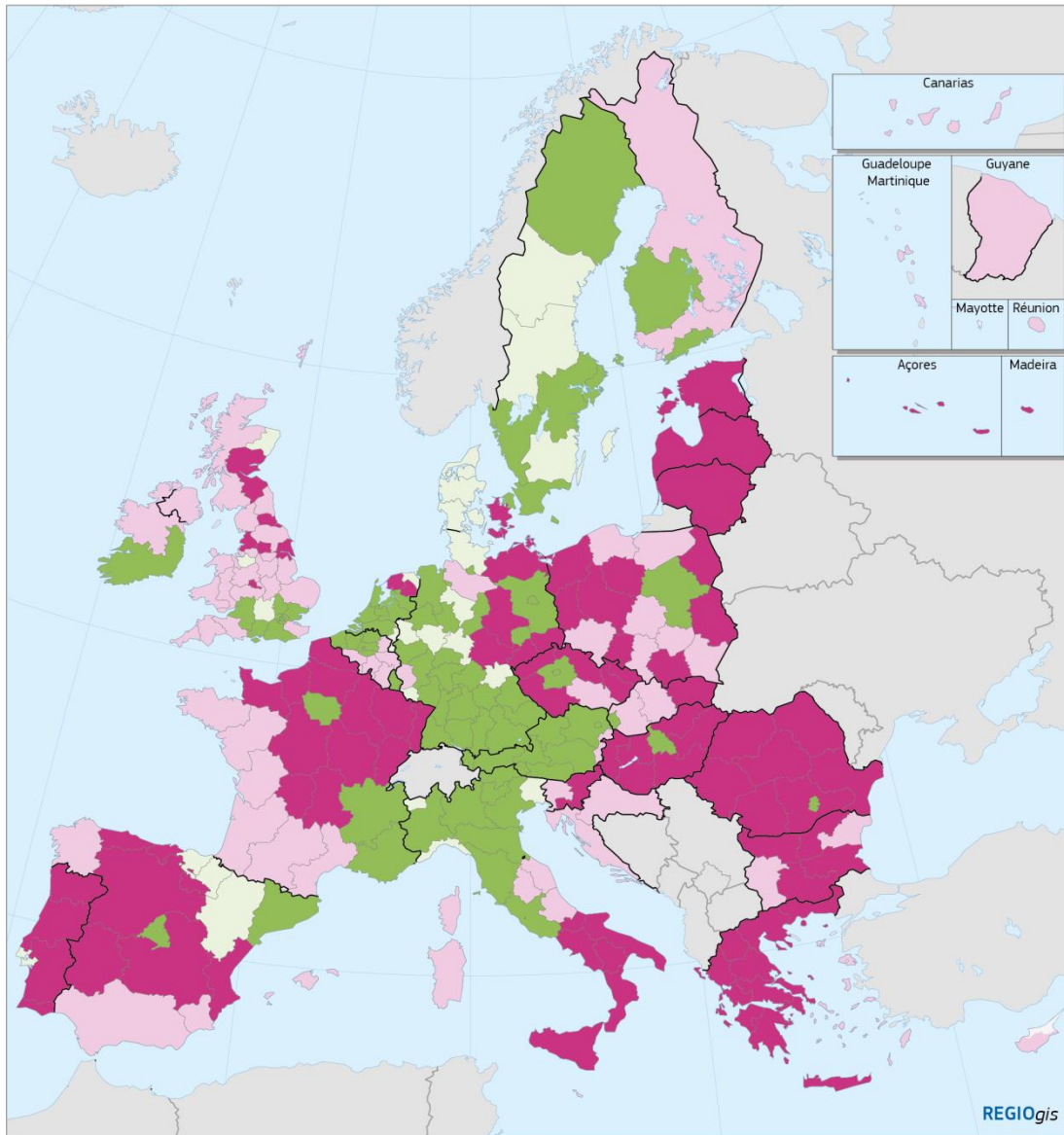


Source: Eurostat, Cambridge Econometrics, DG REGIO



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Map A2: GDP per head EU index (2013) vs. employment change (2001-13)



GDP per head EU Index (2013) vs. Employment Change (2001-2013)

High and low as compared to EU average

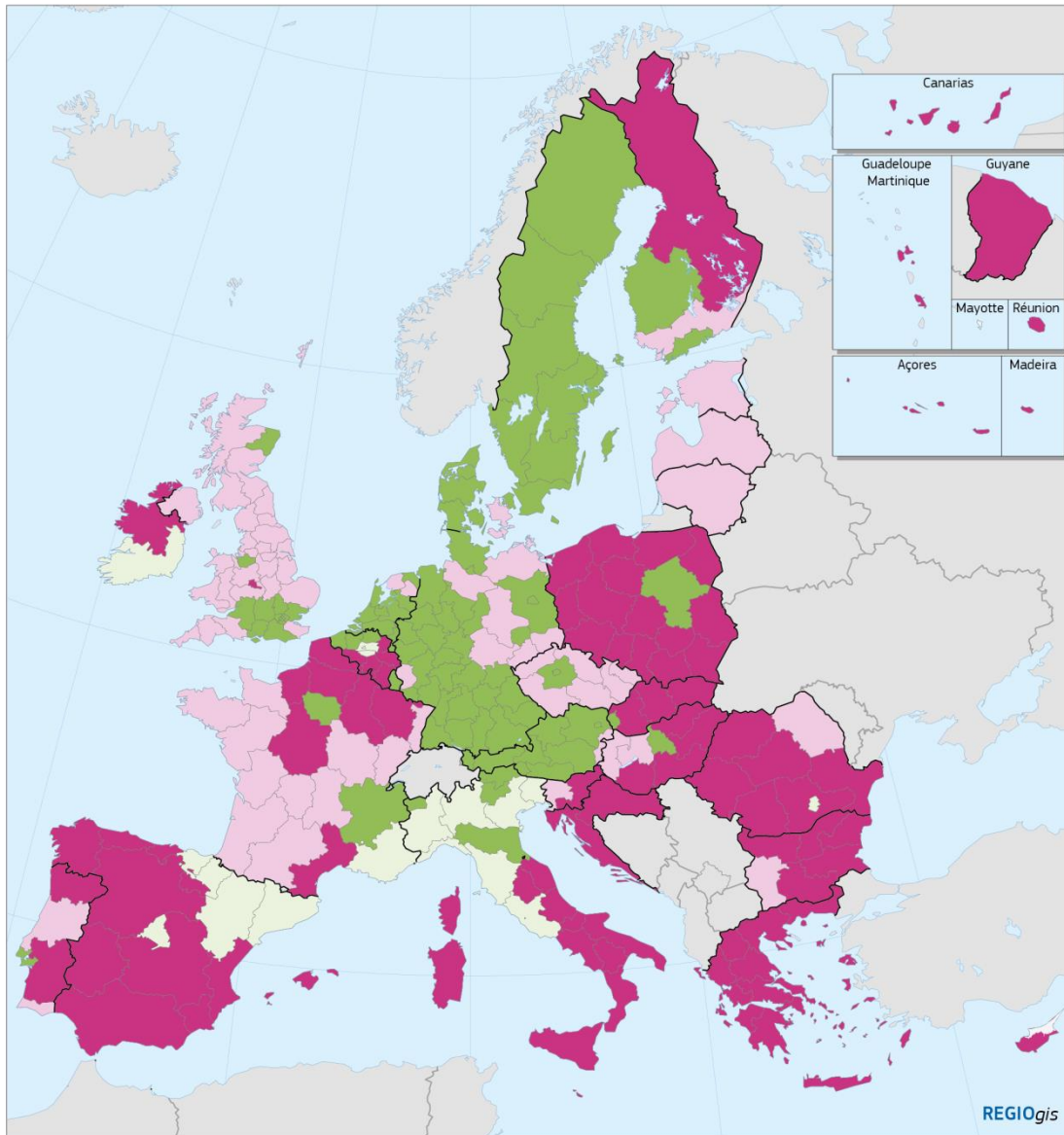


Source: Eurostat, Cambridge Econometrics, DG REGIO



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Map A3: GDP per head EU index (2013) vs. employment rate (2015)



GDP per Head EU Index (2013) vs. Employment Rate (2015)

High and Low relative to EU average

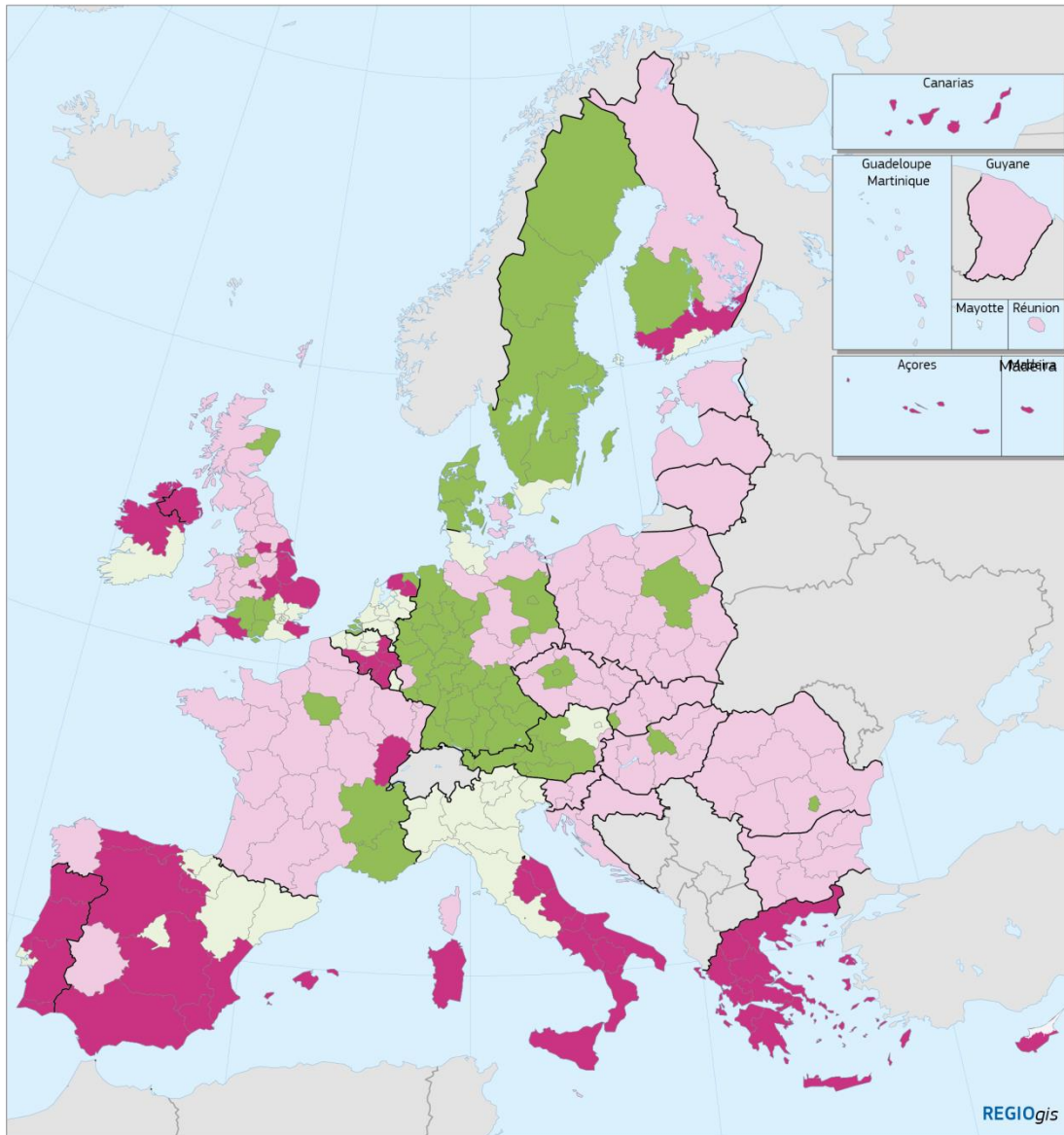


Source: Eurostat, Cambridge Econometrics, DG REGIO

0 500 km

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Map A4: GDP per head (2013) vs. growth rate of GDP per head (2001-2013)



GDP per head (2013) vs. growth rate of GDP per head (2001-2013)

High and Low as compared to EU average

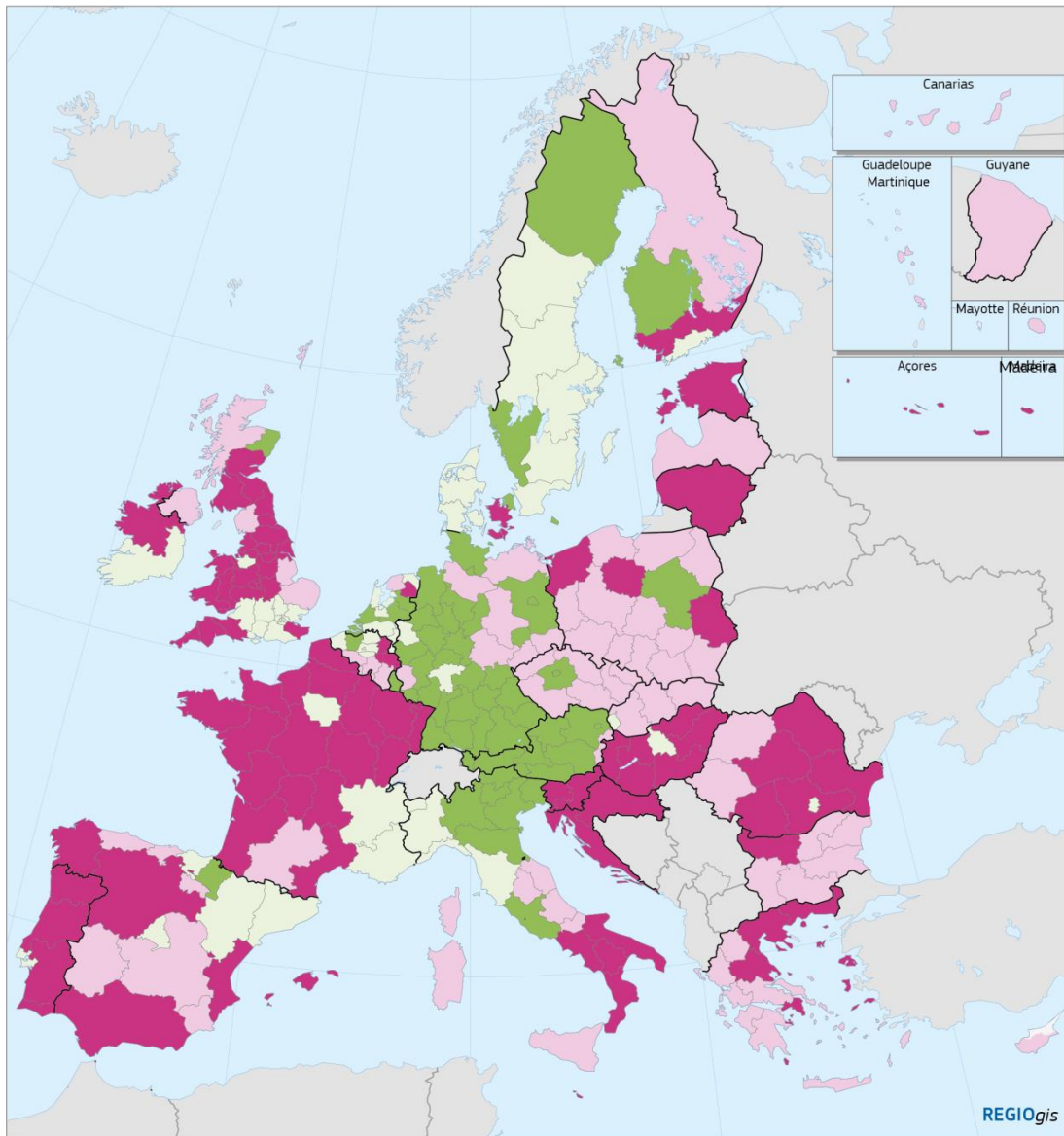


Source: Eurostat, Cambridge Econometrics, DG REGIO

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Map A5: GDP per head EU index (2013) vs. employment change in industry (2001-14)



GDP per head EU Index (2013) vs. employment change in industry, (2001-2014)

High and Low are relative to EU average

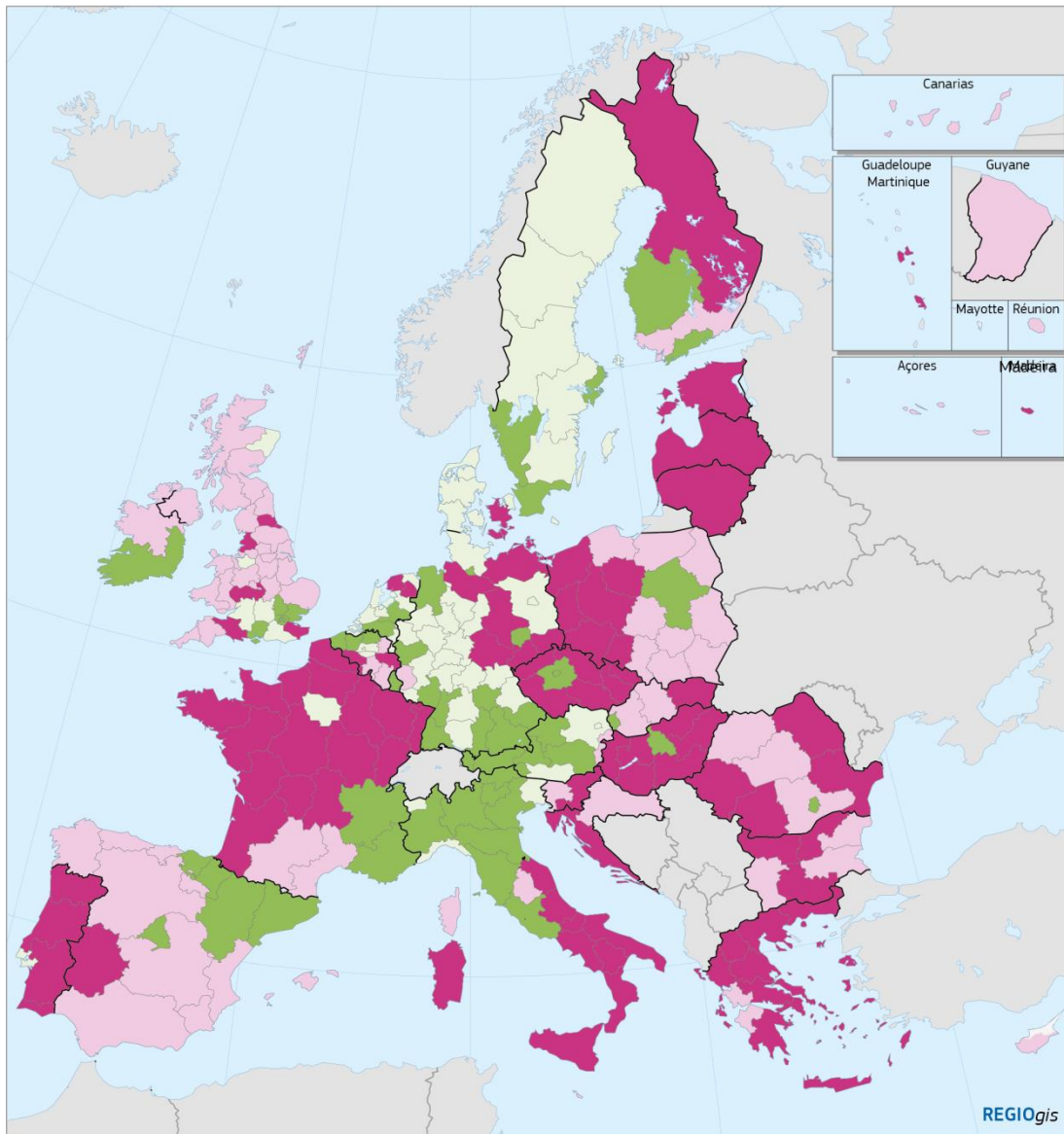


Source: Eurostat, Cambridge Econometrics DG REGIO



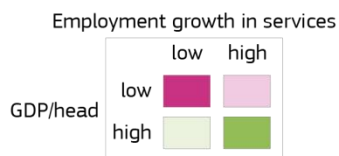
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Map A6: GDP per head EU index (2013) vs. employment change in services (2001-14)



GDP per head EU Index (2013) vs. employment change in services, (2001-2014)

High and Low are relative to EU average

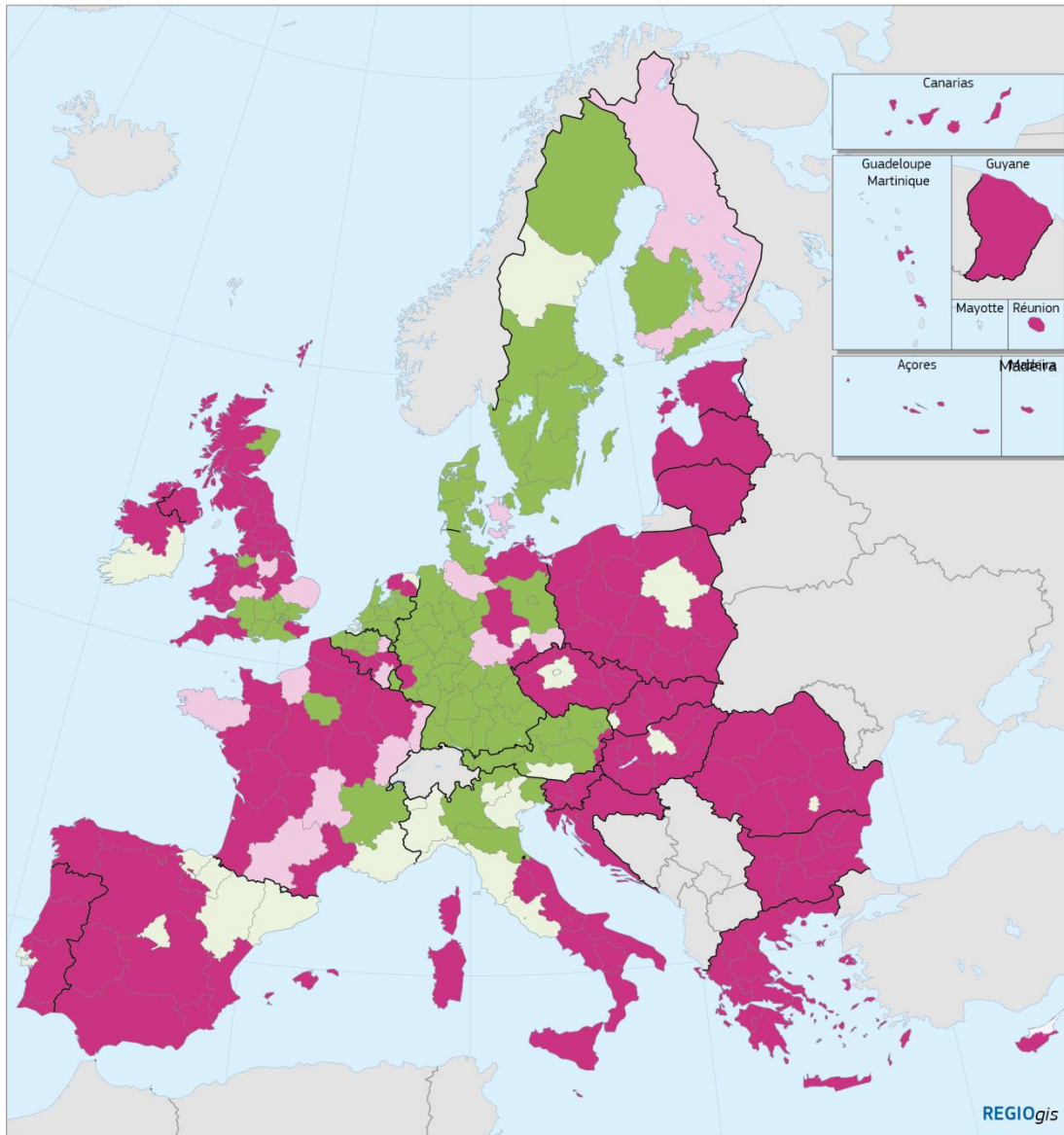


Source: Eurostat, Cambridge Econometrics DG REGIO



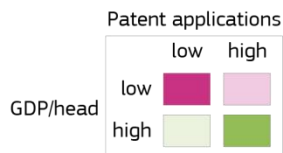
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Map A7: GDP per head EU index (2013) vs. patent applications per million inhabitants (2010-11)



GDP per head EU Index (2013) vs. Patent applications per million inhabitants (2010-2011)

High and low in relation to EU average



Source: Eurostat, Cambridge Econometrics, DG REGIO

0 500 km

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