

Gross domestic product

4





What is regional gross domestic product?

The economic development of a region is, as a rule, expressed in terms of its gross domestic product (GDP). This indicator is also frequently used as a basis for comparisons between regions. But what exactly does it mean? And how can comparability be established between regions of different sizes and with different currencies?

Regions of different sizes achieve different levels of regional GDP. However, a real comparison can be made only by comparing the regional GDP with the population of the region in question. This is where the distinction between place of work and place of residence becomes significant: GDP measures the economic output achieved within national or regional boundaries, regardless of whether this was attributable to resident or non-resident employed persons. The use of per inhabitant GDP is therefore only straightforward if all employed persons involved in generating GDP are also residents of the region in question.

In areas with a high proportion of commuters, regional per inhabitant GDP can be extremely high, particularly in business centres such as London or Luxembourg but also in Hamburg, Praha or Wien, and relatively low in the surrounding regions, even if households' primary income in these regions is very high. Regional per inhabitant GDP should therefore not be equated with regional primary income.

Regional GDP is calculated in the currency of the country in question. In order to make GDP comparable between countries, it is converted into euros, using the official average exchange rate for the given calendar year. However, not all differences in price levels between countries are reflected by exchange rates. To compensate for this, GDP is converted using conversion factors, known as purchasing power parities (PPPs), to an artificial common currency called the purchasing power standard (PPS). This makes it possible to compare the purchasing power of different national currencies (see methodological notes at the end of the chapter).

Regional GDP in 2007

Maps 4.1 and 4.2 provide an overview of the regional distribution of per inhabitant GDP (as a percentage of the EU-27 average of 24 900 PPS) for

the European Union, Croatia, the former Yugoslav Republic of Macedonia and Turkey which has, after a lengthy interruption, once again provided data (for reference years 2004–06) for the first time in line with the ESA transmission programme. The regions with the highest per inhabitant GDP are in southern Germany, in the south of the UK, in northern Italy and in Belgium, Luxembourg, the Netherlands, Austria, Ireland and Scandinavia. The capital regions Madrid, Paris and Praha also fall into this category. The weaker regions are concentrated at the southern, western and south-eastern periphery of the Union, in eastern Germany and the new Member States, Croatia, the former Yugoslav Republic of Macedonia and Turkey.

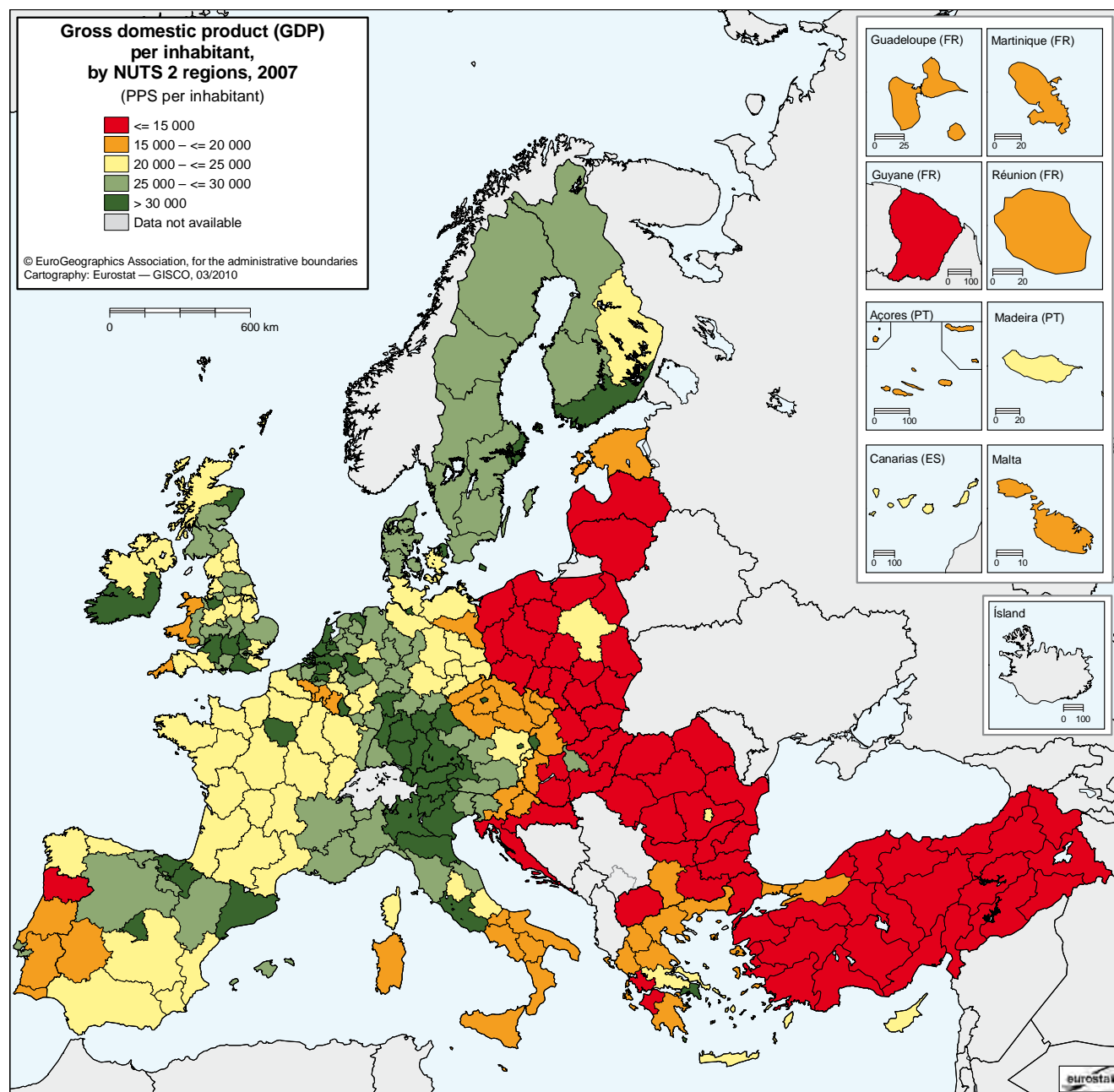
Within the EU-27, per inhabitant GDP ranges from 26 % of the EU-27 average (6 400 PPS) in Severozapaden in Bulgaria to 334 % (83 200 PPS) in the capital region of Inner London in the UK. The factor between the two ends of the distribution is therefore 13.1:1. Luxembourg at 275 % (68 500 PPS) and Brussels at 221 % (55 000 PPS) are in positions 2 and 3, followed by Hamburg at 192 % (47 800 PPS) and Praha at 172 % (42 800 PPS) in positions 4 and 5.

Praha (Czech Republic) thus remains by an increasing margin the region with the highest per inhabitant GDP in the new Member States; Bratislavský kraj (Slovakia) follows with 160 % (39 900 PPS) in position 12 of the 271 NUTS level 2 regions in the EU-27. However, these two regions must be regarded as exceptions among the regions in the new Member States which joined in 2004, since the next most prosperous regions in the new Member States are a long way behind: Zahodna Slovenija (Slovenia) at 107 % (26 600 PPS) in position 94, Közép-Magyarország (Hungary) at 103 % (25 600 PPS) in position 111 and Cyprus at 94 % (23 300 PPS) in position 146. With the exception of four other regions (București-Ilfov in Romania, Mazowieckie in Poland, Malta and Střední Čechy in the Czech Republic), all the other regions of the new Member States have a per inhabitant GDP in PPS of less than 75 % of the EU-27 average.

Map 4.2 classifies the 271 EU regions according to their level of per inhabitant GDP (in PPS) in relation to the EU-27 average of 24 900 PPS per inhabitant. As a result, in 2007, GDP in 67 regions was less than 75 % of the EU-27 average. Some 24.4 % of the EU population live in these 67 regions, three quarters of them in new Member States and one quarter in EU-15 countries.



Map 4.1: Gross domestic product (GDP) per inhabitant, by NUTS 2 regions, 2007 ⁽¹⁾
(PPS per inhabitant)

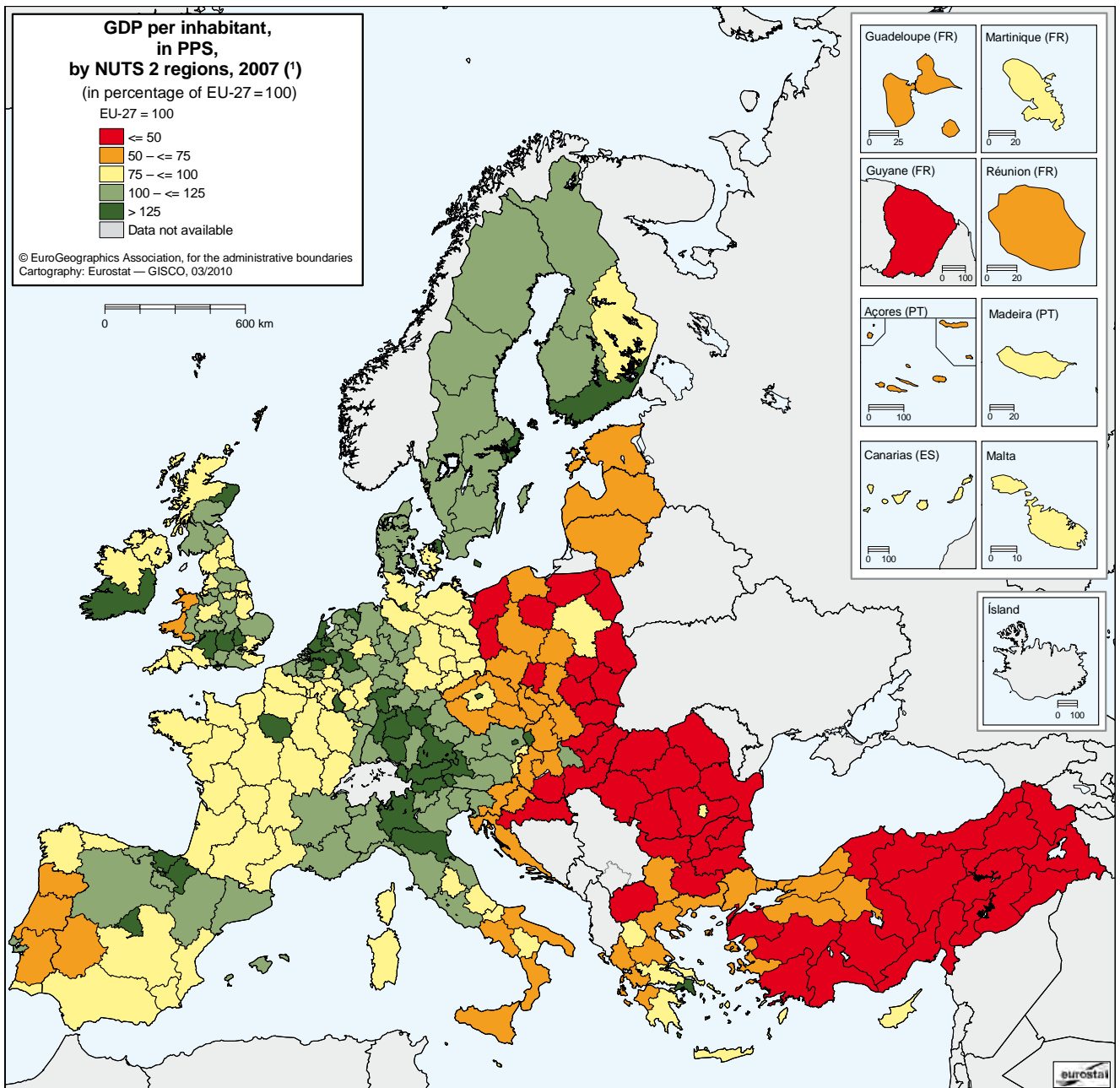


⁽¹⁾ Turkey, 2006.

Source: Eurostat ([tgs00005](#)).



Map 4.2: GDP per inhabitant, in PPS, by NUTS 2 regions, 2007 ⁽¹⁾
(in percentage of EU-27 = 100)



⁽¹⁾ Turkey, 2006.

Source: Eurostat ([reg_e2gdp](#)).

At the upper end of the spectrum, 41 regions have a per inhabitant GDP of more than 125 % of the EU-27 average; these regions are home to 20.6 % of the population. The regions with a per inhabitant GDP of between 75 % and 125 % of the EU-27 average are home to 55 %, and thus a clear majority of the EU population. Some 9.9 % of the EU population live in the 28 regions whose per inhabitant GDP is less than 50 % of the EU-27 average; with the exception of the French département d'outre-mer of Guyane, all these regions are located in the new Member States.

Of the 30 level 2 regions in the candidate countries Croatia, the former Yugoslav Republic of Macedonia and Turkey, only two (the capital region of Sjeverozapadna Hrvatska in Croatia and İstanbul in Turkey) are at a level close to three quarters of the EU-27 average; in a total of nine regions covering 41 % of the population of these three countries, the levels are over 50 % of the EU average. The lowest per inhabitant GDP of the 30 countries examined here is found in the regions Van (15 % of the EU-27 average) and Ağrı (18.2 %) on the eastern edge of Turkey. These levels are around one third below the level of the least prosperous EU region of Severozapaden in Bulgaria.

Major regional differences even within the countries themselves

There are also substantial regional differences even within the countries themselves, as Figure 4.1 shows. In 2007, the highest per inhabitant GDP was more than twice the lowest in 14 of the 23 countries examined here with several NUTS 2 regions. This group includes seven of the nine new Member States/candidate countries but only seven of the 14 EU-15 Member States.

The largest regional differences are in Turkey, where there is a factor of 4.9 between the highest and lowest values, and in the United Kingdom and Slovakia with factors of 4.6 and 3.5 respectively. The lowest values are in Slovenia and in Sweden with a factor of 1.5, and in the Netherlands with a factor of 1.6. Moderate regional disparities in per inhabitant GDP (i.e. factors of less than 2 between the highest and lowest values) are found, with the exception of Slovenia and Croatia, only in EU-15 Member States.

In all the new Member States, Croatia and a number of EU-15 Member States, a substantial proportion of economic activity is concentrated

in the capital regions. Consequently, in 18 of the 23 countries included here in which there are several NUTS 2 regions, the capital regions are also the regions with the highest per inhabitant GDP. For example, Maps 4.1 and 4.2 clearly show the prominent position of the regions of Brussels, Sofia, Praha, Athina, Madrid, Paris and Lisboa as well as Budapest, Bratislava, London, Warszawa and Bucureşti.

A comparison of the extreme values between 2000 and 2007, however, shows that trends in the EU-15 have been very different from those in the new Member States. Whilst the gap between the regional extreme values in the new Member States and Croatia is clearly increasing in several cases, it is falling in one out of every two EU-15 countries.

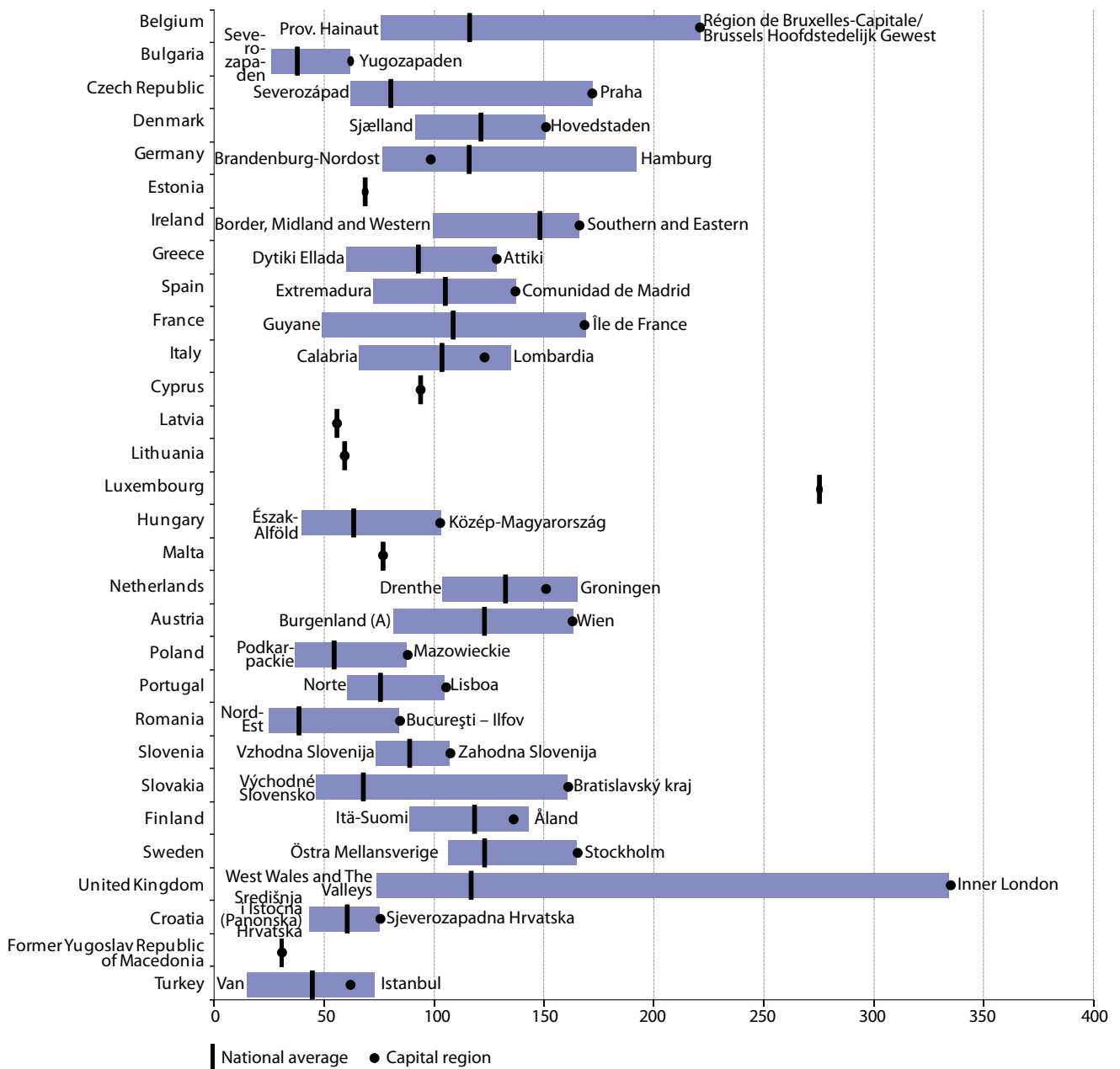
Dynamic catch-up process on the periphery

Map 4.3 shows the extent to which per inhabitant GDP changed between 2000 and 2007 compared with the EU-27 average (expressed in percentage points of the EU-27 average). Economically dynamic regions, whose per inhabitant GDP increased by more than 3 percentage points compared with the EU average, are shown in green. By contrast, less dynamic regions (those with a fall of more than 3 percentage points in per inhabitant GDP compared with the EU-27 average) are shown in orange and red. The range is from +52 percentage points for Bratislavský kraj (Slovakia) to -35 percentage points for Brussels in Belgium.

The map shows that economic dynamism is well above average in the western, eastern and northern peripheral areas of the EU, not only in EU-15 countries but also in new Member States, Croatia and some regions of Turkey.

Among the EU-15 Member States, strong growth can be seen in Spain, Ireland and parts of Greece, the United Kingdom, Finland and Sweden in particular. On the other hand, a trend which started a number of years ago is continuing: sustained weak growth in certain EU-15 countries. Particularly badly hit have been Italy, Belgium and Austria, where no region achieved the average growth of the EU-27 during the seven-year period 2000-07; in France, all regions except Guadeloupe and Martinique, and almost two thirds of those

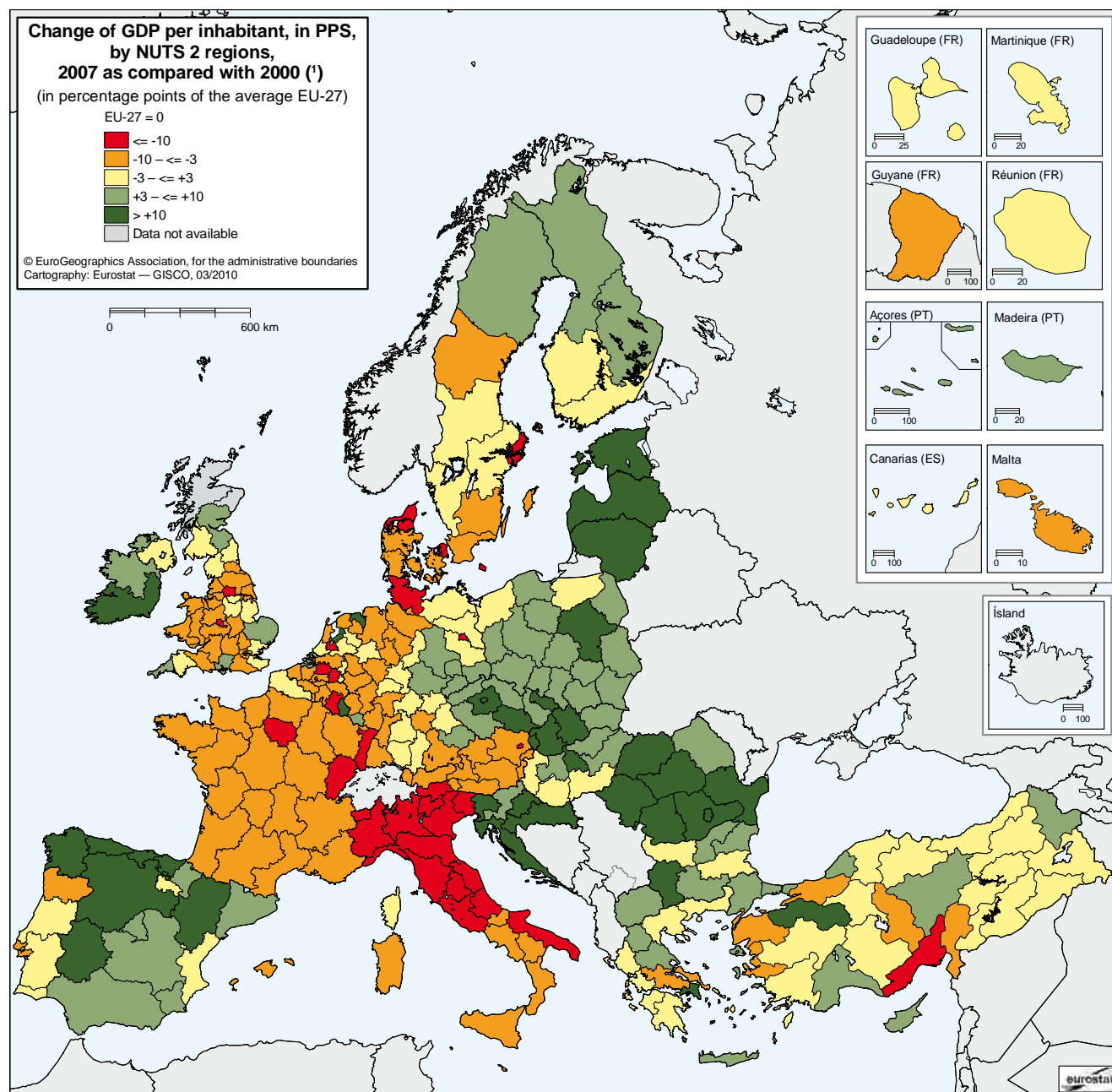
Figure 4.1: GDP per inhabitant, in PPS, by NUTS 2 regions, 2007 ⁽¹⁾
(in % of the EU-27 average, EU-27 = 100)



⁽¹⁾ Turkey, 2006.

Source: Eurostat (tgs00006).

Map 4.3: Change of GDP per inhabitant, in PPS, by NUTS 2 regions, 2007 as compared with 2000 ⁽¹⁾
(in percentage points of the average EU-27)



⁽¹⁾ Denmark, Eurostat estimate; Turkey, 2006 as compared with 2000; Croatia, 2007 as compared with 2001.

Source: Eurostat ([reg_e2gdp](http://ec.europa.eu/eurostat/reg_e2gdp)).



in Germany, fell against the EU average. In Portugal, only Alentejo and the islands achieved growth above the EU average.

Of the new Member States, apart from the very dynamic capital regions, the Baltic countries, Romania, the Czech Republic, Slovakia and most regions of Poland in particular have seen markedly above-average growth. Croatia, the former Yugoslav Republic of Macedonia and most of the Turkish regions also reveal above-average economic growth for the seven-year period 2000–07.

Closer analysis of the most dynamic regions shows that 36 EU regions have outperformed the EU average by more than 10 percentage points; of these, 20 are in the new Member States.

The 10 fastest-growing regions are spread over nine EU Member States. It is striking, however, that the capital regions continue to have an above-average rate of growth not only in the EU-15 countries but also in the new Member States. The non-capital region with the strongest growth in the new Member States was Vest (Romania), where per inhabitant GDP (in PPS) increased by 21.4 percentage points of the EU-27 average between 2000 and 2007.

A clear concentration in certain Member States is, on the other hand, apparent at the lower end of the distribution curve: of the 31 regions which fell by more than 10 percentage points below the EU-27 average, 15 are in Italy, four in Belgium and three in France.

Closer examination of the new Member States yields the pleasing result that, between 2000 and 2007, only three regions fell back compared with the EU-27 average: these are Malta (–7.2 percentage points), Nyugat-Dunántúl in Hungary (–1.3 percentage points) and Zachodniopomorskie in Poland (–0.2).

The trend in Turkey (2006 compared with 2000) was, on the other hand, fairly heterogeneous: by comparison with the EU, the catching-up process in certain western regions of Turkey was, as expected, particularly dynamic (specifically in İstanbul and Bursa); however, progress in individual regions in inland areas and in the east, such as in Kayseri and Ağrı, has been above average. By contrast, other regions, particularly Adana on the eastern coast of the Mediterranean, have in some cases fallen substantially.

The catch-up process in the new Member States was of the order of 1.5 percentage points per year between 2000 and 2007 compared to the EU average, and therefore considerably faster than in the 1990s. Per inhabitant GDP (in PPS) in these 12 countries thus rose from 45 % of the EU-27 average in 2000 to 56 % in 2007. It is feared, however, that owing to the severe economic crisis of 2008 and 2009 this rate of growth will slow towards the end of the decade. However, the initial data available on certain Member States for 2008 and 2009 would suggest that the recession in rural regions and areas lagging behind in terms of economic development was less severe than in regions with a high per inhabitant GDP or with a high level of dependence on exports.

Different trends even within the countries themselves

A more detailed analysis of trends within the countries between 2000 and 2007 shows that the economic development of regions even within a country can be extremely divergent.

The greatest differences were seen in Slovakia, Greece, the Czech Republic and Belgium, where there was a difference of some 30 percentage points relative to the EU-27 average for per inhabitant GDP between the fastest- and slowest-growing regions. Slovenia and Denmark are at the lower end of the scale with 6 and 8 percentage points respectively. The highest and lowest values in the 26 regions of Turkey show a difference of 27 percentage points and thus fall within the upper fifth for the EU Member States.

In both new Member States and EU-15 countries, this significant divergence was the result mainly of dynamic growth in capital regions. However, as the relatively low values for Poland and Croatia in particular show, the data available do not confirm the assumption that such regional growth disparities are a typical feature of new Member States or accession countries.

The available data also show that even the least economically dynamic regions in 12 Member States attained levels of growth above the EU-27 average. It is pleasing to note that this was the case in all seven new Member States with at least two NUTS 2 regions. The same positive trend can be observed in Croatia and Turkey.

Convergence makes progress

This section addresses the question of whether convergence among the regions of the EU-27 has made progress over the seven-year period 2000–07. Regional convergence of per inhabitant GDP (in PPS) can be assessed in various ways on the basis of data supplied to Eurostat by the national statistical institutes.

The simplest approach is to measure the gap between the highest and lowest values. By this method, the gap closed from a factor of 17.7 in 2000 to 13.1 in 2007. The main reason for this clear convergence was the faster economic growth in Bulgaria and Romania. However, as this approach looks only at the extreme values, it is clear that the majority of shifts between regions are not taken into account.

A much more accurate evaluation of regional convergence is afforded by the dispersion of regional GDP calculated by Eurostat for the EU-27 and Croatia since 2007 (for details of the method see the methodological notes at the end of the chapter). This takes account of the divergences from the national average in all NUTS 2 regions for each country in turn, weighted by the regional population. Table 4.1 shows the trends in dispersion for 2000 to 2007 and Figure 4.2 compares the values for these two years. In the first instance a downward trend is apparent, i.e. a decrease in regional dispersion for the EU-27 as a whole. An examination of the trend in individual countries reveals clear differences between certain groups of Member States. Firstly, most of the EU-15 countries have lower dispersion than the new Member States. In addition, values in the EU-15 countries are generally decreasing, whereas they are increasing considerably in some of the new Member States. It is thus evident that the economic catching-up process in the new Member States has so far gone hand-in-hand with increasing regional disparities.

The approach most often used at present involves classifying the regions according to their per inhabitant GDP (in PPS). In this way, the proportion of the EU-27 population living in more or less prosperous regions, and how this proportion has changed, can be ascertained. As a rule, average values over a period of three years are used. Three-year averages for per inhabitant GDP are particularly important because they are used for deciding which regions receive support from the Structural Funds of the EU.

Table 4.2 shows clear progress in economic convergence between the regions over the three-year periods 1998–2000 and 2005–07: the proportion of the population living in regions where per inhabitant GDP is less than 75 % of the EU-27 average fell from 27.2 % to 24.5 %. At the same time, the proportion of the population living in regions where this value is greater than 125 % fell from 24.5 % to 20.4 %. These shifts at the top and bottom ends of the distribution meant that the proportion of the population in the mid-range (per inhabitant GDP of 75–125 %) increased sharply from 48.2 % to 55.1 %. This corresponds to an increase of around 34 million inhabitants.

Map 4.4 shows, however, that despite the clear progress made towards convergence overall, a comparison between the three-year periods 1998–2000 and 2005–07 reveals that just five regions managed to pass the 75 % threshold. These were one region each in Spain, France, Poland, Romania and the UK. These regions are home to almost 16 million people, or around 3.2 % of the EU population. At the same time, however, GDP in two Greek and two Italian regions covering a total of 6.8 million inhabitants, i.e. approx. 1.4 % of the EU population, has again fallen below the 75 % threshold. If both developments are juxtaposed it is found that, as a result of economic development between the three-year periods 1998–2000 and 2005–07, the population living in regions with a GDP of more than 75 % of the average grew by just over 9 million people.

These results close to the 75 % threshold suggest that economically weaker regions benefited only marginally during the first half of the decade from increased convergence in the EU.

However, a more detailed analysis shows that many regions with a GDP of less than 75 % of the EU-27 average have made considerable progress, even where they were not able to exceed the 75 % threshold. The population living in regions with a GDP of less than 50 % of the average thus fell between the three-year periods 1998–2000 and 2005–07 by more than a quarter from 15.2 % to 10.7 %, i.e. by over 20 million people.

Moreover, an examination of the 20 weakest regions as at 1998–2000, where at that time 8.4 % of the EU population lived, shows that this group has progressed as well: per inhabitant GDP in these regions rose between 1998–2000 and 2005–07 from 28.0 % to 36.1 % of the EU-27 average and this testifies, in particular, to the strong catch-up process under way in Bulgaria and Romania.



Table 4.1: Dispersion of regional gross domestic product (GDP), 2000–07 ⁽¹⁾
(per inhabitant)

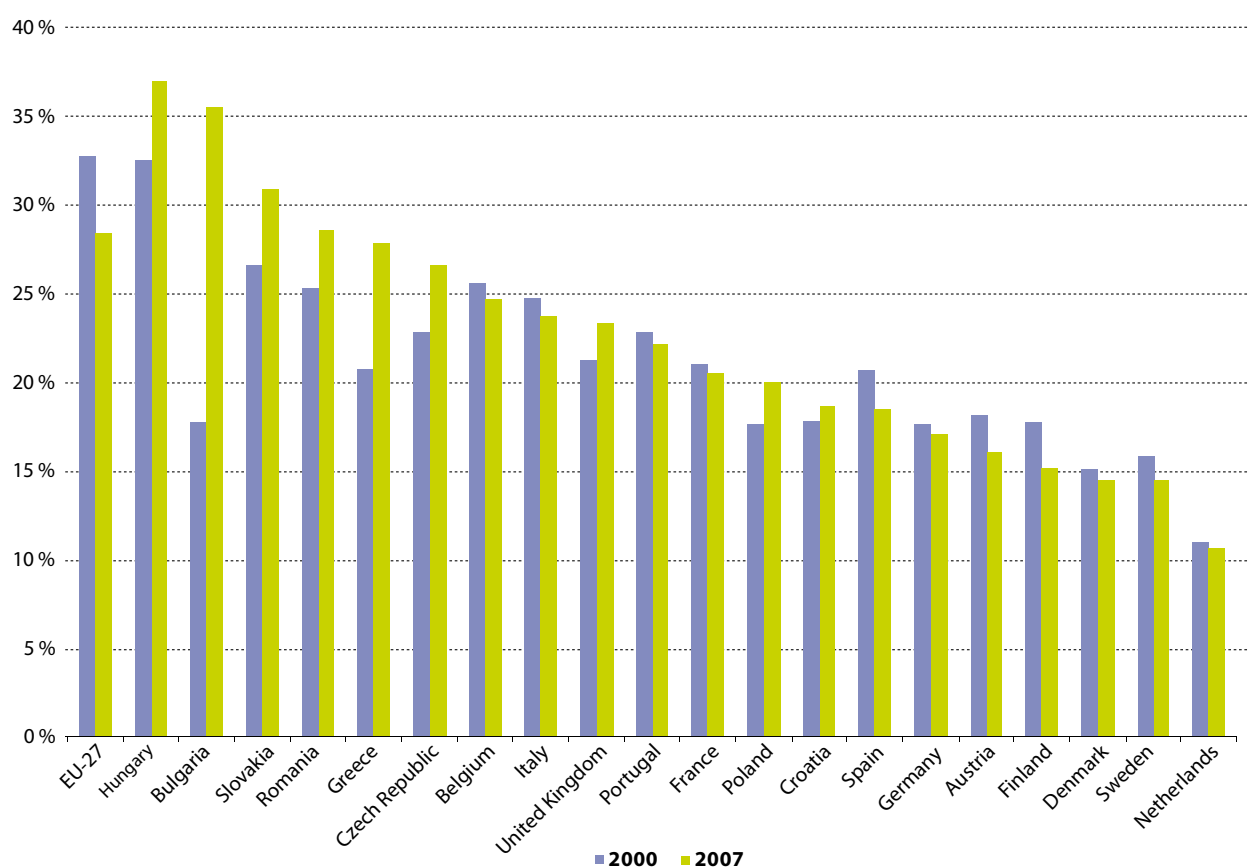
	2000	2001	2002	2003	2004	2005	2006	2007
EU-27	32.7	31.8	31.0	30.4	29.6	29.5	29.0	28.3
Belgium	25.5	25.6	25.6	25.2	25.3	25.7	24.9	24.5
Bulgaria	17.6	20.6	24.4	23.6	25.2	26.4	31.1	35.4
Czech Republic	22.7	24.3	24.8	24.9	24.2	25.1	25.4	26.5
Denmark	15.0	:	:	:	:	16.2	14.9	14.4
Germany	17.6	17.9	17.9	17.8	17.5	17.2	17.1	17.0
Estonia	—	—	—	—	—	—	—	—
Ireland	—	—	—	—	—	—	—	—
Greece	20.6	21.8	24.2	25.4	26.4	26.0	24.9	27.8
Spain	20.5	20.3	19.8	19.1	18.8	18.4	18.4	18.4
France	20.9	20.5	20.5	20.7	19.9	20.3	20.0	20.4
Italy	24.7	24.3	24.2	24.3	24.2	23.9	23.6	23.7
Cyprus	—	—	—	—	—	—	—	—
Latvia	—	—	—	—	—	—	—	—
Lithuania	—	—	—	—	—	—	—	—
Luxembourg	—	—	—	—	—	—	—	—
Hungary	32.4	33.4	36.0	34.5	34.1	35.9	37.8	36.9
Malta	—	—	—	—	—	—	—	—
Netherlands	10.9	10.9	11.2	11.0	11.3	11.9	11.5	10.6
Austria	18.1	18.4	18.7	18.0	16.8	16.6	16.4	16.0
Poland	17.6	18.2	18.1	18.3	18.7	19.4	19.6	19.9
Portugal	22.8	22.1	22.8	22.8	23.0	23.3	22.7	22.1
Romania	25.3	22.8	23.3	23.7	23.0	27.0	27.5	28.5
Slovenia	—	—	—	—	—	—	—	—
Slovakia	26.5	27.3	28.2	27.7	27.9	31.8	30.0	30.8
Finland	17.6	17.5	16.8	15.4	15.7	15.4	15.9	15.1
Sweden	15.7	14.8	15.3	14.8	15.6	16.4	14.9	14.4
United Kingdom	21.1	21.3	22.5	22.4	22.3	22.6	22.7	23.3
Croatia	:	17.8	18.0	18.3	17.6	19.2	19.0	18.6

⁽¹⁾ Dispersion of regional GDP at NUTS 2 level.

Source: Eurostat ([reg_e0digdp](#)).



Figure 4.2: Dispersion of regional GDP per inhabitant, in PPS, NUTS level 2, 2000 and 2007 ⁽¹⁾ (%)



⁽¹⁾ Regional dispersion is not applicable for Estonia, Ireland, Cyprus, Latvia, Lithuania, Luxembourg, Malta and Slovenia; Croatia, 2001 and 2007.

Source: Eurostat ([reg_e0digdp](#)).

Table 4.2: Proportions of resident population in economically stronger and weaker regions

Percentage of population of EU-27 resident in regions with a GDP per inhabitant of:	1998–2000	2005–07
> 125 % of EU-27 = 100	24.5	20.4
> 110 % to 125 % of EU-27 = 100	17.2	16.6
> 90 % to 110 % of EU-27 = 100	20.1	25.0
> 75 % to 90 % of EU-27 = 100	10.9	13.5
less than 75 % of EU-27 = 100	27.2	24.5
less than 50 % of EU-27 = 100	15.2	10.7

Source: Eurostat ([tgs00005](#)).



Conclusion

In 2007, the highest and lowest values of per inhabitant GDP (in PPS) for the 271 NUTS level 2 regions of the EU-27 examined here differed by a factor of 13.1; a figure which is still very high but decreasing over the medium term. Of the 30 level 2 regions in the candidate countries Croatia, the former Yugoslav Republic of Macedonia and Turkey, only two have attained a level of almost three quarters of the EU-27 average. The lowest per inhabitant GDP of the 30 countries examined here is found in the regions Van (15 % of the EU-27 average) and Ağrı (18.2 %) on the eastern edge of Turkey. These levels are around one third below the level of the least prosperous EU region of Severozapaden in Bulgaria.

Within individual countries, there are differences of up to a factor of 4.9 in Turkey. Within the EU-27 the levels are between 4.6 and 1.5; regional differences in new Member States tend to be greater than in the EU-15.

In 2007, GDP in 67 regions was less than 75 % of the EU-27 average. Some 24.4 % of the population live in these 67 regions, three quarters of them in new Member States and one quarter in EU-15 countries. If the view is broadened to include the three-year average for 2005–07, an important indicator for EU structural policy, very similar values are found: 68 regions with 24.5 % of the population show values of less than 75 % of the EU-27 average.

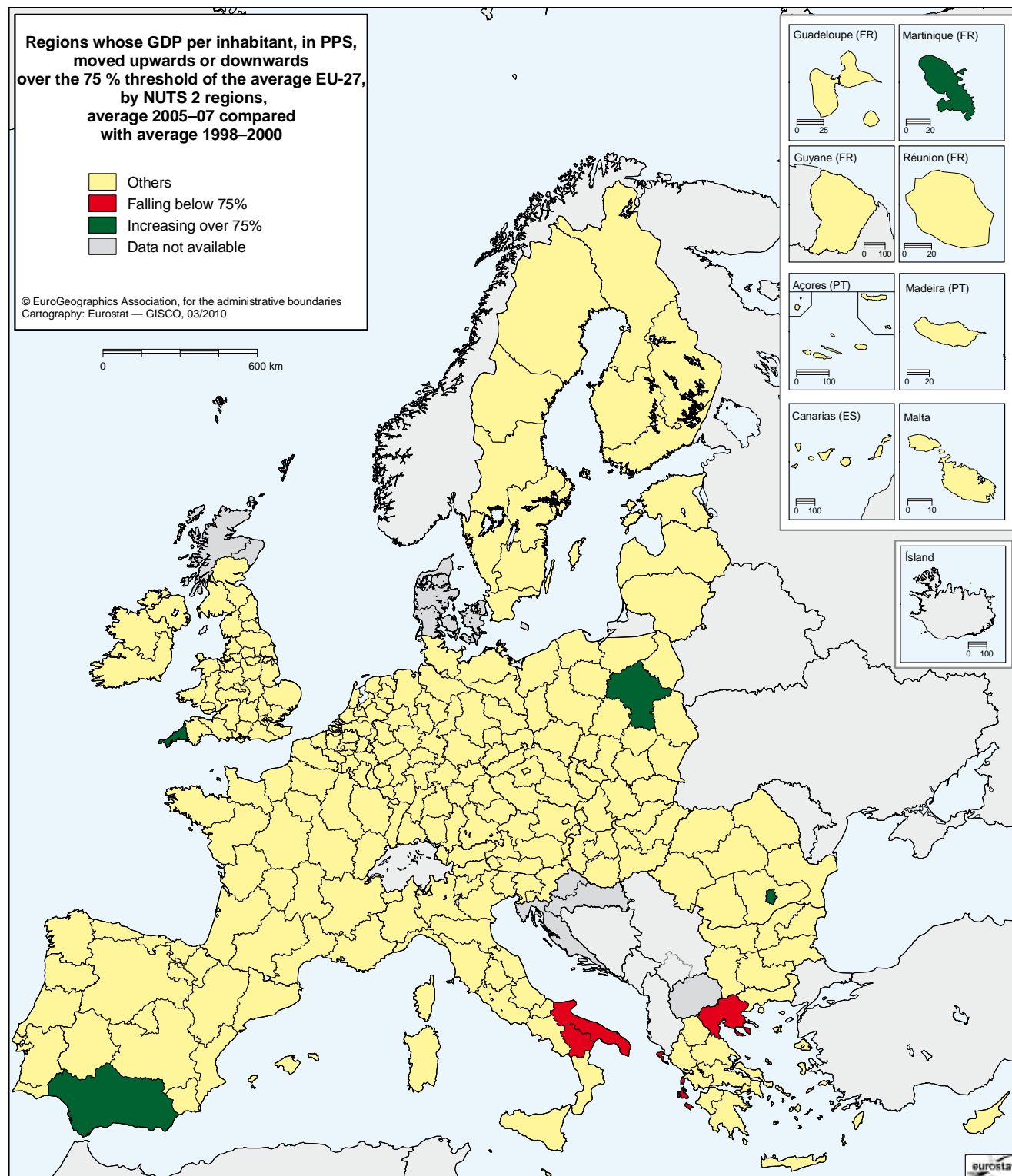
If the trends over the seven-year period 2000–07 are considered, dynamic growth can be seen in the EU-15, particularly in Greece, Spain, Ireland and certain regions of the UK, Finland and Sweden. However, this must be set against rather disappointing growth in most regions of Belgium, Germany, France, Italy, Austria and Portugal.

In the new Member States, significantly above-average growth can be seen primarily in the Baltic countries, Romania, the Czech Republic, Slovakia and most regions of Poland. The same applies to Croatia, the former Yugoslav Republic of Macedonia and the majority of the Turkish regions.

The catch-up process in the new Member States was of the order of 1.5 percentage points per year compared to the EU average between 2000 and 2007, and therefore considerably faster than in the 1990s. Per inhabitant GDP (in PPS) in these 12 countries thus rose from 45 % of the EU-27 average in 2000 to 56 % in 2007. It is feared, however, that owing to the severe economic crisis of 2008 and 2009 this rhythm will slow towards the end of the decade. However, the initial data available on certain Member States for 2008 and 2009 would suggest that the recession in rural regions and areas lagging behind in development terms was less severe than in regions with a high per inhabitant GDP or with a high level of dependence on exports.



Map 4.4: Regions whose GDP per inhabitant, in PPS, moved upwards or downwards over the 75 % threshold of the average EU-27, by NUTS 2 regions, average 2005–07 compared with average 1998–2000



Source: Eurostat (reg_e2gdp).



Methodological notes

Purchasing power parities and international volume comparisons

The differences in GDP values between countries, even after conversion by means of exchange rates to a common currency, cannot be attributed solely to differing volumes of goods and services. The 'level of prices' component is also a major contributory factor. Exchange rates are determined by many factors related to demand and supply in the currency markets, such as international trade, inflation forecasts and interest rate differentials. Conversions using exchange rates are therefore of only limited relevance for international comparisons. To obtain a more precise comparison, it is essential to use special conversion rates which eliminate the effect of price-level differences between countries. Purchasing power parities (PPPs) are conversion factors of this kind which convert economic indicators from national currencies into an artificial common currency, called the purchasing power standard (PPS). PPPs are therefore used to convert GDP and other economic aggregates (e.g. consumption expenditure on certain product groups) of various countries into comparable volumes of expenditure, expressed in purchasing power standards.

With the introduction of the euro, prices can now, for the first time, be compared directly between countries in the euro area. However, the euro has different purchasing power in the different countries of the euro area, depending on the national price level. PPPs must therefore also continue to be used to calculate pure volume aggregates in PPS for the Member States within the euro area.

In their simplest form, PPPs are a set of price ratios between the prices in national currency of the same good or service in different countries (e.g. a loaf of bread costs EUR 2.30 in France, EUR 1.90 in Germany, GBP 2.40 in the UK, etc.). A basket of comparable goods and services is used for price surveys. These are selected so as to represent the whole range of goods and services, taking account of the consumption structures in the various countries. The simple price ratios at product level are then aggregated to PPPs for product groups, then for overall consumption and finally for GDP. In order to have a reference value for the calculation of PPPs, one country is usually chosen and used as the reference country, and set to 1. For the European Union, the selection of a single country as a base is inappropriate. Therefore, PPS is the artificial common reference currency unit used in the European Union to express the volume of economic aggregates for the purpose of spatial comparisons in real terms.

Unfortunately, for reasons of cost, it will not be possible in the foreseeable future to calculate regional conversion factors. If such regional PPPs were available, the GDP in PPS for numerous peripheral or rural regions of the EU would probably be higher than that calculated using national PPPs.

The regions may be ranked differently when calculating in PPS instead of euros. For example, in 2007 the Swedish region of Östra Mellansverige had a per inhabitant GDP of EUR 31 300, putting it well ahead of Madrid at EUR 30 600. However, in PPS, Madrid at 34 100 PPS per inhabitant is ahead of Östra Mellansverige at 26 500 PPS per inhabitant.

In terms of distribution, the use of PPS rather than the euro has a levelling effect, as countries with a very high per inhabitant GDP also generally have relatively high price levels. The range of per inhabitant GDP in NUTS level 2 regions in the EU-27 thus falls from 93 400 in euros to 76 900 in PPS.

Per inhabitant GDP in PPS is the key variable for determining the eligibility of NUTS level 2 regions under the European Union's structural policy.

Dispersion of per inhabitant GDP

Since 2007, Eurostat has been calculating a derived indicator which records the differences between regional per inhabitant GDP and the national average and makes them comparable between countries.



For a given country the dispersion D of regional GDP of the level 2 or 3 regions is defined as the sum of the absolute differences between regional and national GDP per inhabitant, weighted with the regional share of population and expressed as a percentage of national per inhabitant GDP:

$$D = 100 \frac{1}{Y} \sum_{i=1}^n | (y_i - Y) | (p_i / P)$$

where:

- y_i is the regional per inhabitant GDP of region i ;
- Y is the national average per inhabitant GDP;
- p_i is the population of region i ;
- P is the population of the country;
- n is the number of regions of the country.

The value of the dispersion of per inhabitant GDP is equal to zero, if regional GDP values are identical in all regions of the country or economic area (such as the EU-27 or the euro area), and it will show, *ceteris paribus*, an increase if the differences between the regional per inhabitant GDP values among regions are rising. For example, a value of 20 % means that the per inhabitant GDP of all regions of a given country, weighted on the basis of the regional population, differs from the national value by an average of 20 %.

The EU-27 value is calculated by treating the EU-27 as a single country, i.e. only the level 2 or 3 regions are taken into account in each case. The corresponding NUTS level 2, level 1 or national values are thus not used in the calculation in order to avoid them being taken into account twice.

GDP dispersion figures published on the Eurostat website are based on per inhabitant GDP in purchasing power standards (PPS).