ESPON

SIESTA
Spatial Indicators for a ‘Europe 2020 Strategy’ Territorial Analysis

Applied Research 2013/1/18

Draft Scientific Report | Version 10/08/2012

Annex A

Competitiveness and Economic Growth

EUROPEAN UNION
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INVESTING IN YOUR FUTURE

This report presents the draft final results of an Applied Research Project conducted within the framework of the ESPON 2013 Programme, partly financed by the European Regional Development Fund.

The partnership behind the ESPON Programme consists of the EU Commission and the Member States of the EU27, plus Iceland, Liechtenstein, Norway and Switzerland. Each partner is represented in the ESPON Monitoring Committee.

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1. Introduction

"Development" as the objective of undertaken activity was first formally announced by the U.S. President H. Truman in 1949 and was generally understood as growth of the newly developed measure GDP (Gross National Product) (Dresner 2004). Since then, the development policy of most countries, regions and cities has been focused on the growth of this particular indicator. Thus, GDP growth is a sign of development.

On the basis of the economic theory, however, it is possible to distinguish two approaches to the concepts of "development" and "growth." The former clearly separates the two categories, link "growth" to economic growth (GDP growth), and "development" to socio-economic development. In this context, development is a broader concept than growth and carries more content. Economic growth is quantitative and reflects the total value of all goods and services produced, reduced by the value of goods and services used for intermediate consumption in their production. Socio-economic development comprises structural changes and other qualitative changes which accompany economic growth, including but also going beyond, factors which stimulate economic growth. In this context, the economy may show growth yet without development, but not vice versa (Kamerschen, McKenzie, Nardeinelli 1991, Czaja 1999). The second interpretation of these two concepts treats them as synonyms which specify the same economic process, which aims at enlarging basic macroeconomic indicators such as GDP, and also at improving technology and qualifications, etc. (Samuelson 1996, Czaja 1999).

The basic measure of economic growth, as mentioned above, is GDP which is treated as a measure of wealth, and when calculated per capita it is interpreted as the wealth of societies. However, the constant expectation of growth that countries and regions have, at the expense of natural and social growth, led to development problems in the second half of the 20th century, and sustainable development was supposed to be the answer.

Sustainable growth, in addition to smart growth and inclusive growth, is one of the three key priorities in the EU2020 strategy. It is understood as promoting a resource-efficient economy which would be more eco-friendly and more competitive than in the 20th century. Therefore growth, defined in this way, is closer to the concept of development, although it is worth emphasizing that development would be impossible without economic growth. For these reasons, economic growth continues to be one of the major objectives of various strategic documents drawn up at the EU, national, regional and urban level.

The socio-economic changes taking place in the world today which result from the processes of globalization and integration of the global economy, require a new approach to economic growth. One such example is the competitiveness between the individual subjects (counties, regions, cities, enterprises), which is perceived as the main driving force of development, and which is the result of uniform global demand, gradual elimination of transfer barriers, uniform standards and norms, as well as progress in ITC technologies (Wdowicka 2008).

The terms ‘competitiveness’ and ‘competition’ have been known for a long time, both in theory and in economic practices. The term 'economic competitiveness' is used to refer to enterprises, industries, municipalities, regions and whole national economies. Simply speaking ‘competition’ can be defined as a process of rivalry between economic entities seeking to achieve similar goals (Stankiewicz 2001).

The term competitive enterprise does not raise many controversies, as opposed to evaluating the competitiveness of a city, region or country, which probably stems from the different nature of competition (Golińska-Pieszyńska 2008).

Competitiveness of the national economy is determined by the ability to create more wealth than that created by competitors in the global market. This ability results from the process of transforming the resources of a given country (mostly natural resources) through economic processes (e.g. manufacturing), into economic effects (Jodkowski 1995). The level of competitiveness is determined mainly by: (1) economic potential, (2) internationalization of the economy, (3) economic policy, (4) financial system, (5) infrastructure equipment, (6) management, (7) the scientific and technological level and (8) human capital (Wdowicka 2008).

The competitiveness of cities and regions is usually defined as the ability to adapt to the changing conditions, while paying special attention to maintaining or improving one's position in the ongoing rivalry between regions and cities (Chmielewski, Trojanek 1999, Cybulski 1999, Winiarski 1999, Komorowski, 2000). This changeability is a distinctive feature of the contemporary world and it mainly concerns economic issues, such as the global crisis which has been present since 2008, but also social, cultural, political and technical issues as well. Growing competitiveness creates favorable conditions, inter alia, for the globalization of the economy, limiting the role of country borders and increasing the openness of local and regional economies which is, at the same time, accompanied by dependence on global change. Rivalry takes place above all over: reaching a higher level of development, the importance in terms of space, having access to external benefits, financial resources, attracting the most efficient and most dynamic companies, investors or institutions, and

human capital (Wdowicka 2008). The measure of competitiveness is the ability to make use of the available production factors, and on their basis form such economic structures which will guarantee long-term and effective development to ensure a high level of income (Klamut, Passella 1999, Wdowicka 2008).

Worth noticing is the approach to competitiveness presented in the studies of the European Commission, where a competitive European economy is one, in which the society can maintain a growing standard of living, assuming of course that the balance of payments and the welfare of future generations are not threatened (Radło 2003). This definition, therefore, emphasizes the rising standard of living (wealth and also the level of prosperity of the population) and the welfare of future generations, which refers to the need for sustainable growth. Therefore, there is no doubt that the levels of economic growth and competitiveness are strongly connected to each other. This notion of competitiveness is reflected in the non-binding and, unfortunately, not successful Lisbon Strategy.

With growing competitiveness, those units which will appropriately make use of their competitive advantages will achieve economic success. Long-lasting competitive advantage results from the ability to create short-term competitive advantages. These advantages, however, are the result of natural determinants and historical accumulation of resources. However, there is the opinion that the significance of such advantages decreases in favor of high-quality human and social capital, characterized by a high level of education, entrepreneurship, creativity and innovation (Cybulski 1999, Klamut 1999, Florida 2003, 2005, Wdowicka 2008). Spatial diversity of the above mentioned characteristics leads, among other things, to spatial differentiation of economic development, labor productivity, technical and technological advancement and prosperity of societies.

Since the beginning of economic sciences, there have been attempts to explain the phenomenon of unequal distribution of wealth in an economy and the reasons for these widening disparities, despite simultaneous increase in the absolute standards of living due to technological progress. The analysis of regional disparities of economic growth can be categorized as one of the main research trends within the framework of geography, and regional geography in particular. There are a number of different theories and models which attempt to explain the geographical diversification of economic growth and prosperity of societies. One example is F. Perroux's growth pole theory which states that there are certain areas which are particularly privileged and favorable because of their conditions of development called centers or poles of growth, and

areas which are still in a much worse situation. According to the theory of growth poles and from a spatial perspective economic development is manifested in the form of polarized growth. This means that due to certain forces there is concentration of economic activity and growth in some areas, and the lack of such activity or it is less intense in other areas, which in turn leads to an imbalance between geographical areas and the branches of economic activity which are located there (Klaassen, 1974, 1974 Hermansen, Parysek 2006).

Another theory which attempts to explain the different levels of regional development is Friedmann's core and periphery model (1967). This model is an outline of the spatial structure of the regional system based on the assumption of unequal development, and it describes the nature of the relative location of rich and poor regions in a given system. The main components of the regional system in this model are the core regions, which are characterized by high levels of socio-economic development, and the peripheral regions, which are adjacent to the core regions, yet they represent a low level of development. This perspective corresponds to Boudeville's concept of polarized regions, which lies within the category of nodal regions (Czyż 2002).

The transformation processes which have been taking place in central Europe after the enlargement of the EU in 2004, seem to confirm the conclusions of the 'center-periphery' model according to which Western Europe is an attractive 'center' of economic and cultural strength which attracts 'peripheries', i.e. the less developed countries in the immediate vicinity and those further away. The driving force of the EU's enlargement process is the assumption that membership in the integration group, naturally creates favorable conditions for reducing development disparities (Gierczycka-Bednarek 2010). This, in particular, results from the fact that the primary objective of the European community is to equalize the level of development of its individual members. The convergence hypothesis suggests that under favorable conditions economic development in different countries may even out (Ptaszyńska 2008).

Convergence is the process of evening out the differences between countries and regions in the European Union and making socio-economic structures similar (Council Regulation of 14th July 2004 setting out the general rules on the European Regional Development Fund, the European Social Fund and the Cohesion Fund). It is also one of the three priority objectives of the EU cohesion policy for 2007-2013, which focuses on supporting the least developed member states and regions in catching up faster to the EU average, by creating favorable conditions for economic growth and employment. At the same time, it is assumed that convergence is possible due to the rapid development of economically less

developed countries in relation to relatively rich countries, which is the result of greater accumulation of production factors or an increase in their productivity. Therefore, real convergence, in terms of balancing the levels of economic development is usually measured by GDP per capita in PPS (purchasing power parity).

Integration, however, does not affect the process of reducing development disparities automatically and unconditionally. There is a correlation between the level of economic growth and the level of development of market institutions, which condition that growth. From the EU's experience to date, as well as from endogenous growth theories it appears that membership provides an opportunity, yet does not guarantee to reduce the development gap in relation to the richest countries in the integration group. Much depends on whether a given country or region can take advantage of this opportunity through its own economic policy, strategy and protecting its interests.

2. Comments on maps

2.1. GDP per capita in PPS, 2009

The concept of GDP per capita came into being due to the unreliable national income of countries and regions when compared to the standard of living of their citizens. It can be calculated by dividing the value of GDP of a given region by the number of the population. Calculations on a per inhabitant basis allow for the comparison of economies and regions significantly different in absolute size. This indicator is one of the world's most widely used indicators of the level of socio-economic development and prosperity of the population of a given region. GDP in PPS (purchasing power standards) per capita is used to describe the situation in various regions and it is the key variable for determining the eligibility of NUTS 2 regions in the framework of the European Union's Structural policy. Expressing GDP in PPS, therefore eliminates the differences in price levels between countries. (EUROSTAT, 2012).

GDP per capita in PPS is therefore one of the indicators which shows the level of regional development and the wealth of societies. It also enables to make interregional comparisons which are particularly relevant when implementing the EU cohesion policy (convergence) and building European competitiveness in the global arena. This, in turn follows directly from the regulations in the Lisbon Strategy. Growth is also one of the key objectives set out in EU2020S and in the Flagship Initiatives of the EC. It is about such sustainable growth which would contribute, inter alia to improving the efficiency of the economy and raising the standard of living and the quality of life, which is determined largely by GDP per capita.

Although development and growth are not synonyms, as development is a broader concept referring not only to quantitative changes but qualitative ones as well, it is clear that the basis for development is economic growth which gives the population of a given region real prosperity (Kurek, 2010).

However, this study does not show the level of economic growth and prosperity in the analyzed regions in absolute numbers, but in the mean value obtained for the EU27 countries. Therefore, the study shows the variation in the level of economic growth, pointing to regions which are more or less developed than the average for the EU27, in other words, regions where the population is more or less affluent than the average population of the EU27. At the same time, it shows the distance between individual regions in relation to the average value in this respect.

MS	*Region*	*GDP per capita in PPS (%)*
UK	West Inner London	596
UK	Inner London	332
DE	München, Landkreis	330
DE	Frankfurt am Main, Kreisfreie Stadt	314
FR	Hauts-de-Seine	304
FR	Paris	294
DE	Düsseldorf, Kreisfreie Stadt	286
DE	Schweinfurt, Kreisfreie Stadt	268
DE	Regensburg, Kreisfreie Stadt	267
LU	Luxemburg	266

Table 1 Regions with the highest GDP per capita in PPS in 2009 (EU27 = 100%)

MS	*Region*	*GDP per capita in PPS (%)*
MK	Položki	17
MK	Severoistočen	19
RO	Sălaj County	22
BG	Sliven Province	22
BG	Silistra Province	22
BG	Kyustendil Province	24
BG	Razgrad Province	24
BG	Montana Province	24
BG	Vidin Province	24

Table 2 Regions with the lowest GDP per capita in PPS in 2009 (EU27 = 100%)

The analysis of economic growth and prosperity of the population of the individual regions is particularly interesting, due to the fact that the basic assumption of the EU regional policy is to reduce the differences in the level of development of the individual regions and the backwardness of the outermost regions and islands, including rural areas. This has been the EU's objective since 1992 when, as a result of signing the Treaty of Maastricht instruments (Cohesion Fund) and policies (Cohesion Policy) were legislated to reduce the development disparities in individual regions and enhance their competitiveness (Gawlikowska-Hueckel 2002, Głąbicka 2004, Gawlikowska-Hueckel, Zielinska-Głębocka 2004, Kurek, 2010). Although the term 'consistency' has not been clearly defined, it is generally used to determine the inequalities between regions and countries participating in the integration process and understood as the degree to which differences in social and economic welfare between different regions within the Union are politically and socially acceptable (Molle 2000, Kurek, 2010). It can therefore be assumed that a reduction in interregional disparities leads to greater cohesion, whereas an increase in disparities results in a reduction in cohesion. In the current situation, increasing cohesion is one of the major challenges which the EU has to face. There are two reasons for this. Firstly, the EU has expanded its borders to include new member states in the EU structures, which are usually at a lower than average EU level of socio-economic development. And secondly, the so-called 'global crisis' which has been in progress since 2008. Its full outcome is not very clearly visible in this analysis.

When analyzing the spatial distribution of GDP per capita in PPS in 2009, it is possible to notice great regional diversity in this respect, and what is more, a clear division of Europe into three parts: (1) the western and southern part, (2) the central and northern pat, and (3) the eastern part.

The highest level of economic development and prosperity of the population in relation to the average of the EU27 is represented mainly by the northern and central regions of the EU, in particular, the sparsely populated regions of Norway, which in fact, is not a member of the EU, some big and medium-sized metropolitan regions of central Europe and the predominantly moderate mountainous regions of the Alps, but also the regions of western Germany and the Benelux countries, where GDP per capita in PPS is higher than 125% of the EU27 average. The level of affluent people is also high in Switzerland, which like Norway, is not a member of the EU. Among the countries and regions surveyed the highest level of affluent population can be seen in Norway (over 75% higher than the average of the EU27), a country which in the middle of the 20th century was considered as being rather poor. It is assumed that this is largely due to exploiting and selling non-renewable resources (crude oil

and natural gas) in the North Sea. As for other regions, a high level of prosperity among the population is most likely the result of the widely understood processes of globalization and metropolisation.

The richest regions in the EU27countries and EU candidate countries are the metropolitan regions in highly developed countries, such as: (1) the United Kingdom, where the Inner West London region has the highest level of economic growth and prosperity of the population of almost 6 times higher than the EU27 average, (2) Germany, where there are as many as 5 of the 10 most developed regions in the EU27 (Munich, Frankfurt am Main, Düsseldorf, Schweinfurt, Regensburg), (3) France, where a particularly high level of economic growth is represented by the following regions: Hauts-de-Seine and Paris, and (4) Luxemburg (tab. 1). These are all regions where there are numerous universities, research and developmental centers, technological parks and financial institutions. It is these regions that increasingly develop their economy based on knowledge, and since they offer a high standard of living they attract the creative class, which today is regarded as one of the most important factors of urban development (Florida 2005, Kopel 2007, Stryjakiewicz 2010, 2011).

The least affluent population, in turn, is that of the eastern regions of the EU particularly Poland, the Baltic republics (Lithuania, Latvia and Estonia), Hungary, Romania, Bulgaria, Slovenia, and the regions of the EU candidate countries, where GDP per capita in PPS is 50% or less of the EU27 average (tab. 2). These are countries of the former so-called Eastern Bloc, where the communist regime and the ideology of socialism acted as a brake on economic and social development, and whose economies, which operated within a command-and-quota system were, and still are difficult to adapt to the requirements of free market economy. The mentality of people brought up on the ideology of real socialism is probably not without significance. The level of economic growth and prosperity of the population of these countries seems to be very distant from the EU27 average, since in some cases it is less than 25% of the average (EU27 = 100%). A slightly better situation, in this respect, is present in the Czech Republic and Slovakia.

The regions with the lowest levels of economic growth and prosperity of the population among those analyzed are primarily: (1) Macedonia EU candidate country, in particular Položki where the level was the lowest (only 17%), but also Severoistočen, (2) Romania, where Sălaj County was one of the poorest regions, and (3) Bulgaria, where many regions were classified as the poorest, especially the regions of Sliven Province, Silistra Province, Kyustendil Province, Razgrad Province, Montana Province, Vidin

Province. The situation in Lithuania and Latvia in this regard, is not that good.

The regions of western and southern Europe (the UK, France, Spain, Portugal, Italy, Greece and Iceland) offer its residents a fairly varied, yet generally speaking, average level of wealth (GDP per capita in PPS between 50-125% of the EU27 average). The population of Iceland, northern Spain and Italy are in the best situation in this respect, while the least favorable situation is in certain regions of Greece, France, Great Britain and Ireland as well as southern Italy and southern Spain (except for the coastal regions), and Portugal.

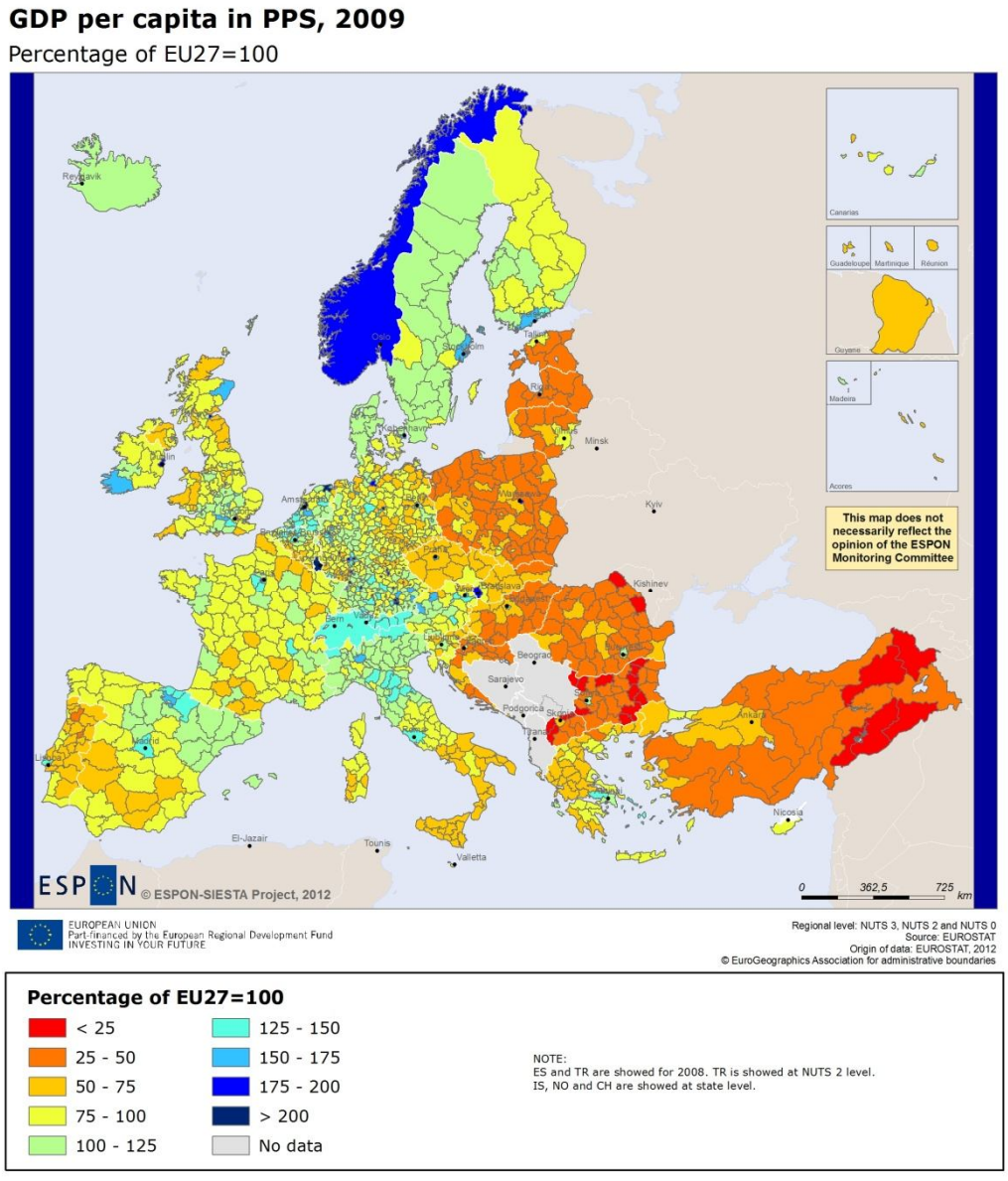
By analyzing the spatial distribution of economic development and prosperity of the population, attention is to the fairly large regional differences in this respect in some countries. The characteristic distribution of rich and poor regions allows reaching the following conclusion, namely that there are certain regularities. And so, in the case of Spain and Italy there is a clear division between the richer regions in the north and the poorer regions in the south, whereas in the case of Germany, richer regions in the west and poorer regions in the east. In the case of Germany, this division reflects the political history of individual states, and is reflected in the level of economic development. Although twenty years have passed since the reunification of East Germany (GDR) and West Germany (FRG), full cohesion and a balanced level of economic development have still not been achieved in all the regions of the country. In the case of Spain and Italy, such regularities may result from the limited availability of transport in certain regions which can lead to their peripheralization due to the large distance from the core (Kurek 2010). The core region is characterized by high levels of socio-economic development, and it clearly dominates the peripheries in terms of economic and social development (Friedmann 1967, Czyż 2002). In the case of Spain and Italy, areas in the northern parts of these countries are certainly the core.

Among the countries where there is a fairly even level of regional development it is possible to distinguish those in which: (1) the level is relatively high (e.g. Sweden, Iceland, Denmark, Holland, Belgium, Austria), (2) the level is rather average (for example, France) and (3) the level is low (e.g. Poland, Lithuania, Latvia, Estonia, the Czech Republic, Slovakia, Slovenia, Hungary, Greece) or very low (e.g. Bulgaria, Romania, Macedonia, Turkey).

The analysis shows that regional disparities, in terms of the level of economic growth and the prosperity of the population are great among the analyzed countries in Europe which, in this regard shows a lack of cohesion. The highest level of development (apart from countries which

are not members of the EU and noncandidate countries - Norway and Switzerland), takes place mainly in the metropolitan regions of countries which are traditionally regarded as being highly developed. The spatial distribution of the highly developed regions refers to the so-called European Banana (Blue Banana, Hot Banana), which was identified in the 90s of the 20th century, and stretched from England through the Benelux countries, western Germany, Switzerland to northern Italy. This area can be treated as the core of EU development. Whereas, the analyzed regions of eastern European and, to some extent the predominantly mountainous and remote regions (with the exception of Norway and northern Spain) can be classified as the peripheries.

Map 1



2.2. Gross Domestic Product per inhabitants in PPS of in Urban Audit LUZ, (combined years 2007-2009)

GDP is a measure which was initially used to study economic growth of National States. With time, it also began to be used in comparative analyses of other spatial scales, including cities. GDP per capita measures the total output of an urban area, which takes the gross domestic product (GDP) and divides it by the number of people in that urban area. PPPs are used to equalize the purchasing power of different national currencies through Purchasing Power Parities, thus allowing for meaningful cross-urban comparisons. Also, GDP per capita often refers to the standard of living, with higher per capita GDP being interpreted as having a higher standard of living. The major advantage of GDP per capita as an indicator of standard of living is that, it is measured frequently, widely, and consistently. The argument for using GDP as a standard-of-living proxy is not that it is a good indicator of the absolute level of standard of living, but that living standards tend to move with per-capita GDP. It is a measure particularly important in a situation when the EU 2020 strategy includes the following three main priorities, namely smart growth, sustainable growth and inclusive growth, and the standard of living seems to be an important component of all of them, and particularly of inclusive growth. What also seems significant is the fact that, cities are perceived as the main driving force of economic, social, civilisational and cultural development in the world. For these reasons, growth of GDP per capita in PPS in urban areas may contribute to the improvement of living standards and prosperity not only of the residents of a city itself, but it may determine the level of development of the whole region (and sometimes even the whole country).

MS	*Urban area*	*GDP per capita in PPS*
LU	Luxemburg	68500
IE	Dublin	53900
IE	Corc	46700
SE	Stockholm	41000
FI	Helsinki	40300
SK	Bratislava	39900
AT	Linz	39300
NL	Utrecht	38700
AT	Salzburg	38100
UK	Aberdeen	38100

Table 3 Urban areas with the highest GDP per capita in PPS (combined years 2007-200)

MS	*Urban area*	*GDP per capita in PPS*
HU	Nyíregyháza	8300
RO	Craiova	8000
PL	Nowy Sacz	7700
BG	Ruse	7500
RO	Bacau	7400
RO	Piatra Neamt	6300
BG	Pleven	5900
BG	Vidin	5500
RO	Calarasi	5400

Table 4 Urban areas with the lowest GDP per capita in PPS (combined years 2007-200)

MS	*Urban area*	*GDP per capita in PPS*
FR	Amiens	21900
ES	Alicante	21800
ES	Murcia	21600
IT	L'Aquila	21600
BG	Sofia	21200
EL	Irakleio	21200
ES	Sevilla	21100
ES	Toledo	21000
UK	Lincoln	20700
SK	Trnava	20400

Table 5 Urban areas with the average GDP per capita in PPS (combined years 2007-2009) (median=21200)

The importance of cities in the world today has been emphasized in the Leipzig Charter, according to which European cities are considered valuable economic, social and cultural assets, due to their unique historical, cultural and architectural value, strongly developed mechanisms of social integration and the ability to create unique opportunities for economic development. In addition, attention has been paid to the fact that cities are a source of knowledge, economic growth, social progress and innovation, yet at the same time, they are a place where social inequality, social marginalization and many environmental problems exist and are on the increase (Leipzig Charter, 2007). Therefore, cities require a sustainable development policy, one which would take into account economic prosperity as well as social stability, a high-quality living environment and institutional capacity (Mierzejewska 2011). Therefore, there is no doubt that European cities require development, yet not only quantitative development but also, and perhaps above all, qualitative development which would guarantee a high standard of living. As it is a high standard of living which attracts bright, resourceful, active, and creative people, that is people whose role in shaping a knowledge-based economy as well as creative cities and regions, cannot be overestimated. The importance of knowledge and creativity in shaping the competitive advantage of cities and regions was already brought to attention in the 80s of the 20th century (Anderson 1985, Malecki 1987), and since the

publishing of 'Cities and the Creative Class' by Florida, these issues have become the focus of attention of many researchers (Stryjakiewicz et al 2010 a, 2010b, 2010c, Mesterd, Muri 2010 and others) and research teams (e.g. Project ACRE). The quality of life is crucial in attracting and retaining a skilled labor force, businesses, students, tourists and, most of all, residents in a city.

Improving the attractiveness of cities to businesses and residents is also one of the most important aims of the EU's Strategic Guidelines for Cohesion Policy for the years 2007-13. The document stresses the need to focus on improving competitiveness and achieving more balanced development between the economically strongest cities and the rest of the urban network. At the same time, special attention is paid to the problems of urban areas, such as social marginalization, high and increasing levels of crime, and general deterioration of the quality of life in impoverished urban areas. Solutions to the above mentioned problems must be found. Thus, it may be assumed that (1) a high quality of life and wealth of the inhabitants may be a city's competitive advantage, and (2) the level of urban development of the EU27 Member States should be evened out.

This map shows the results of research conducted under the Urban Audit, and therefore, it presents the standard of living and prosperity only in selected cities which have been included in the research. The set of analyzed cities includes all EU capitals and a large sample of large and medium-sized cities participating in the European Urban Audit, a data collection covering over 300 cities in the EU.

On the basis of the analysis of the spatial distribution of different standards of living and wealth of the inhabitants of the analyzed cities, it is possible to indicate regions which have cities with the highest, medium, and the lowest level of GDP per capita in PPS. The regions with the highest standard of living and wealth of the urban residents, in general include: (1), the Benelux countries, (2) Southern Ireland and Central Great Britain, (3), Southern Germany, Austria and Northern Italy, and (4) Northern Spain. The regions with the average standard of living of urban residents in general, include: (1) the Nordic-Baltic region, (2) Northern and Central France, (3) Eastern, Central and Western Spain, (4) Western Great Britain, and (5) Central Italy. The regions with the lowest standard of living of urban residents are concentrated primarily in: (1) the vast eastern part of the European Union, which includes Lithuania, Latvia, Estonia, Poland, East Germany, the Czech Republic, Slovakia, Hungary, Bulgaria and Romania, (2) Southern Italy and Malta and (3) Portugal. Therefore, there is a clear division of the European Union into the central and western part, which in general offers the residents of cities a high and

average standard of living, and the eastern part which generally offers an average and low level in this regard.

The analysis shows that the most favorable living conditions and wealth, based on the GDP per capita in PPS, are offered to residents of cities of the former EU-15 countries, whereas the least favorable conditions, are in the cities of the so-called Eastern Bloc countries, including the countries which joined the EU in 2004 and later. However, it should be emphasized that this is a generalized perspective, since even among the cities of the eastern part of the European Union are those in which the standard of living is very high (e.g., Bratislava).

A detailed analysis of maps and the collected data show that the highest standard of living and wealth of inhabitants in the years 2007-2009, was found in such cities as: Luxemburg (Luxemburg), Dublin and Cork (Ireland), Stockholm (Sweden), Helsinki (Finland), Bratislava (Slovakia), Linz and Salzburg (Austria), Utrecht (the Netherlands), or Aberdeen (Great Britain) (tab. 3). A total of 44 European cities achieved the best results in this respect, reaching a GDP per capita in PPS higher than 30000. The lowest standard of living was found in Giurgiu in Romania and in several other Romanian cities (Calarasi, Bacau, Piatra Neamt, Craiova), but also in Pleven, Vidin and Ruse in Bulgaria, Nowy Sacz in Poland and Nyíregyháza in Hungary (tab. 4). These were all cities where the level of GDP per capita in PPS did not exceed 8300. This is particularly worrying at a time when, the average value of the index for the analyzed cities amounted to 22 088 and was close to the median (21 200). The average level of life (similar to that of the average value and the median) was found, inter alia, in the following cities: Amiens (France), Alicante, Murcia, Seville and Toledo (Spain), L'Aquila (Italy), Sofia (Bulgaria), Irakleio (Greece) , Lincoln (Great Britain) and Trnava (Slovakia) (tab. 5). Thus, it is possible to observe rather large differences (almost 14-fold) in the quality of life and wealth of the inhabitants of the analyzed cities, measured by GDP per capita in PPS.

The highest index value (GDP per capita in PPS) among the analyzed cities was found mainly in capital cities (such as, Luxemburg, Dublin, Stockholm, Helsinki, Bratislava), which is probably due to the ongoing metropolisation processes, but also in medium-sized urban centers, which may support the thesis that the so-called *'human scale'* cities (Wallis 1977) have favorable conditions and a high standard of living. This is also reflected in the fact that there are more and more supporters of the concept of *'slow city'* (Imbroscio 2003).

Cities, due to their size, their change dynamics, the complex ways in which they function and their range of influence, play a special role in the settlement system. At the turn of the 20th and 21st century, cities began

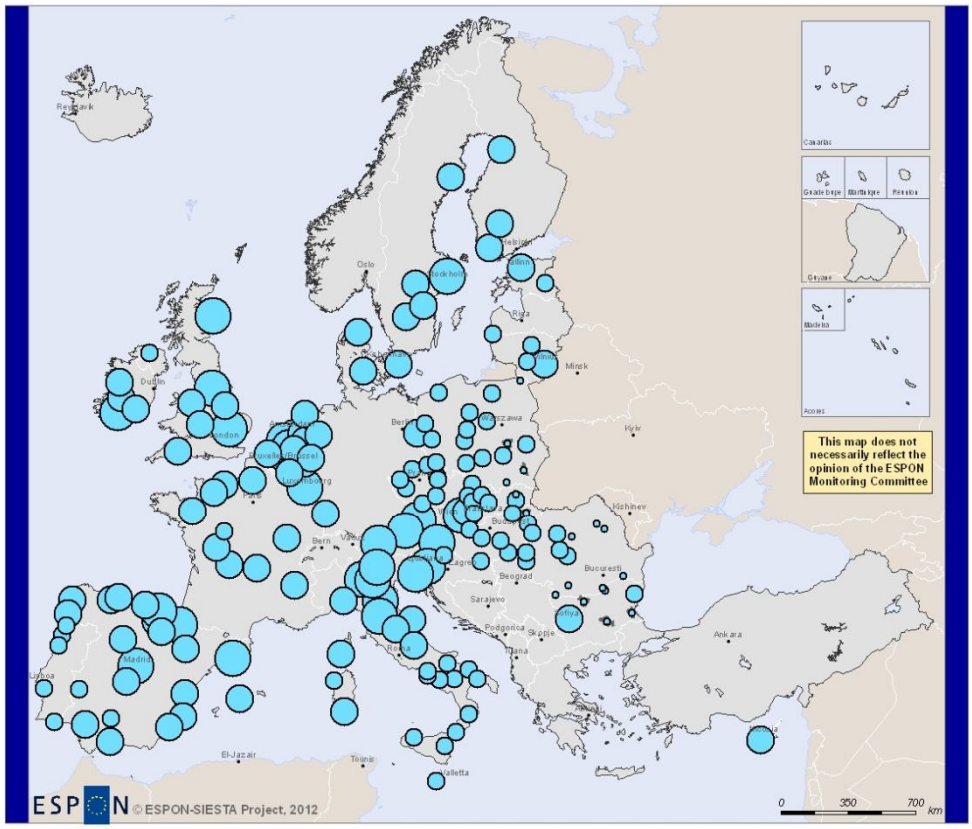
to be perceived as machines for producing wealth, yet at the same time they gave rise to many dangers and threats. The increasing role of large cities in the world economy is becoming particularly noticeable, especially those cities which are referred to as metropolises (Parysek 2005). A metropolis is a very large city which embraces individuals who perform high-ranking political, administrative, economic, social and cultural functions, which operate on a larger spatial scale, mainly on a global scale. Therefore, the nature and the extent of the spatial connections of metropolises are of great importance. These connections concern the flow of information, money, goods, services and people (Parysek 2005). Today metropolitan cities are major hubs of a developing global settlement system which begins to influence national settlement systems. This means that in this global, transnational system of different-sized cities, the leading role is played by metropolitan areas, world cities and global cities (Friedmann 1986, 1995, Knox 1995, 2002, Cooke, Wells 1992, Demateis 2001, Soja 2000a, 2000b, 2001, Parysek 2000a, 2000b, 2001, 2003, 2005). There is no doubt that capital cities are metropolises, no matter what rank they are, and to a large extent, it is capital cities, but also smaller cities, which offer their inhabitants a high standard of living and prosperity.

Along with the processes of globalization and metropolisation, which lead to the growth of urban centers and a rapid pace of urban life, new tendencies towards slowing down that pace have appeared, and they are expressed, inter alia, in the idea of *'slow city'*. *Slow City* is an alternative approach to the traditional understanding of urban economic development, which is based on building the competitiveness of a city in an increasingly globalized world. Alternative approaches, however, are about identifying the nature of urban economies and promoting the vitality of cities (Imbroscio 2003). In the *Slow City* approach, particular attention is drawn to those local economic development strategies which will lead to increased vitality, justice, equal opportunities for development and sustainability of local communities. Most of the cities which have been certified as '*Slow City'* are located in Italy (mainly in Tuscany and Umbria), and also in Germany, Norway and Great Britain. These are cities in which both the authorities and residents pay special attention to the cultivation of local history and traditions, and take advantage of their differences (individual characteristics) in order to develop in a more sustainable manner (Mayer, Knox 2006). The implementation of the principles of *Slow City* creates favorable conditions for improving the quality of life in cities and helps make cities more resident-friendly *(livability),* that is why, more and more medium-sized cities join this movement (Mayer, Knox 2006).

This analysis has led to two main conclusions. The first conclusion concerns the fact that, not only economically thriving metropolises offer a high quality of life and prosperity, but so do medium-sized cities, which offer its residents a slower pace of life and a 'human scale' spatial organization. The second conclusion relates to the balance of development between the economically strongest cities and the rest of the urban network, which in the current socio-economic situation is not possible to identify (this equilibrium is not observed). A lack of convergence in living standards and wealth of the inhabitants of the analyzed European cities, most likely results from the period of time in which the analysis was carried out (for two out of the 27 EU countries, the years 2007-2009 were a time of joining the EU, while for 10 other countries, it was just a few years after having joined the EU).

Map 2

Gross Domestic Product per inhabitant in PPS of NUTS 3 region, 2007-2009



2.3. Growth measured as GDP variations, change 2000-2008

The economic indicator GDP per capita representing the final result of the production activity of resident producer units divided by the number of inhabitants can be defined in three ways: (1) the sum of gross value added of the various institutional sectors or the various industries plus taxes and less subsidies on products, (2) the sum of final uses of goods and services by resident institutional units (at regional level) and (3) the sum of uses in the total economy generation of income account: compensation of employees, taxes on production, less subsidies, gross operating surplus and mixed income of the total economy (EUROSTAT, 2012). It is the most important indicator allowing for the measurement and comparison of the economic development level of regions, or the level of affluence within societies.

The figure shows how GDP per capita was changing in the analysed European regions in 2000-2008. It is a crucial indicator as the examined period includes both years of economic prosperity (the early years of the 21st century) and the early beginning of the economic crisis from 2007 on. Therefore, the changes in GDP per capita to a large extent illustrate how individual regions were affected by fluctuations in the global economic situation, or how well they coped in the beginning of the crisis, which has sadly continued up to now.

MS	*Region*	*GDP per capita (% of change)*
RO	Ilfov	217.91
BG	Pernik	190.48
BG	Sofia (stolitsa)	178.89
RO	Sibiu	174.47
RO	Timis	172.88
RO	Arges	162.75
RO	Prahova	160.87
RO	Bucuresti	160.18
RO	Alba	155.56
RO	Braila	151.35

Table 6 Regions with the highest GDP per capita 2000-2008 (percentage of change)

MS	Region	GDP per capita (% of change)
BE	Arr. Virton	-9.62
DE	Heilbronn, Stadtkreis	-2.82
UK	Blackpool	-2.48
UK	Sefton	0
DK	Københavns omegn	0.74
DE	Friesland	1.64
IT	Reggio nell'Emilia	2.31
UK	Powys	2.40
DE	Mainz, Kreisfreie Stadt	2.59
DE	Eisenach, Kreisfreie Stadt	2.76
UK	Leicester	2.95
DK	Vestjylland	3.69
EL	Voiotia	3.86

Table 7 Regions with the lowest GDP per capita 2000-2008 (percentage of change)

It is clear from map 3 that countries in the Eastern Europe, most notably Romania, have regions that displayed a very dynamic growth of GDP per capita, but also, Slovenia, Croatia, Lithuania, Latvia, Estonia, Poland, Slovakia, Bulgaria, and the Czech Republic. With few exceptions, the regions of the listed countries managed to achieve economic growth. It should be noted that the countries are newcomers to the EU and in most cases use their own currencies rather than the euro.

The other group of states are basically all the remaining ones in the examined area, i.e. all EU states not listed above and Norway, Switzerland, and Turkey, where GDP per capita changes in 2000-2008 were minor. Those regions showing a lower growth were located in Central and Western Europe, in particular in France, Italy, and Greece, but also Switzerland, the United Kingdom, Ireland, Iceland, Sweden, Belgium, the Netherlands, Denmark, Portugal, Austria, and Germany (mainly regions in the west of the area made up by the countries). The group includes mostly well developed economies, including Eurozone members. The situation was slightly better in Spain, Norway, or Turkey, where most regions recorded minor, but still some economic growth. In the case of

Spain it is possible that 2008 was too early to see the effects in the GDP per capita due to the economical depression.

Among the ten most dynamically developing European regions in 2000-2008 as many as eight were regions of Romania. The highest rate of economic growth was recorded for the Romanian regions of Ilfov (217.91%), and Sibiu, Timiş, Arges, Prahova, Bucuresti, Alba and Brăila, and for the Pernik and Sofia (stolitsa) in Bulgaria (tab.6). In all these regions GDP per capita grew by at least 150 %.

Regions showing a higher decrease in GDP per capita were ones commonly considered to be economically well-developed, including Arr. Virton in Belgium, with the most severe negative growth of GDP per capita in the examined geographical area, amounting to -9.62 %; Heilbronn, Stadtkreis in Germany (-2.82%), and Blackpool (-2.48%)in the United Kingdom (tab. 7).

Undoubtedly, the map showing changes in GDP in the period 2000-2011 will show a very difficult EU situation, but unfortunately, these data is still not available at regional level. The scale of the negative economic changes that affected European regions, including a clear economic slow-down, or even crisis, as well as a drop in the level of consumption and level of affluence of the society, is an effect of the global banking and economic crisis that started in 2007 with the sub-prime mortgage crisis in the United States. The real economic slump, a product of the financial market crisis, spread from the United States to many a part of the world. Its effects were particularly adverse for European countries. Stock exchange tumbles and falling property prices dramatically reduced the valuation of household assets, particularly in the most developed countries, which contributed to a major reduction in consumer spending. The financial crisis hampered businesses' access to borrowing and increased its price, which had a particularly adverse effect on large companies using this form of funding. Falling property prices, in turn, led to a slump in the construction sector, the more severe, the stronger the earlier housing construction boom (Światowy kryzys gospodarczy, 2011). All the above contributed to increased unemployment and consequently worsened consumer moods, reflected in reduced consumption (Orłowski, Pasternak, Flacht, Szubert, 2010). Therefore, the causes of the crisis in European regions and entire countries may be traced back to both external (global) and internal factors (within the EU).

When analysing changes occurring on the global scene, particular attention is paid to the following (Kryzys na rynkach… 2009): (1) dramatic changes in the balance of economic power in the world and the accompanying instability, (2) rapid globalisation processes, (3) rapid demographic changes, (4) rapid development of the derivatives market,

(5) rapid development of financial markets, and (6) disastrous economic policy mistakes (especially of the US, but not only).

In terms of endogenous factors, the following are considered to be the main causes of the economic problems of European regions and countries (Orłowski 2011): (1) demographics (the ageing Western European societies require new workers to sustain growth), (2) the problem of cultural identity and limited capacity to absorb immigrants into the society, (3) the attachment of citizens to the idea of the great welfare state, ensuring a level of social security unseen in other parts of the world, (4) troubles in the Eurozone, an effect of inability to cooperate effectively or act together, and (5) the inability to remain competitive and sustain a satisfying level of economic growth.

At the same time, it is stressed that Europe was not able to cope with globalisation or fully take advantage of the mechanisms of economic growth based on knowledge and intensive use of human capital, which made it the continent with the lowest growth rate, losing its position to new superpowers emerging in Asia (OECD, 2003, Orłowski 2011). Some researchers believe that one of the causes of the crisis in the EU was paradoxically its enlargement, which made the club a far less homogenous aggregate of states and problems, whose political energy was from then on focused on ensuring just *any* cohesion (Kuźniar 2011). Also a paradox, the crisis affected most strongly the countries of the old fifteen members (EU15), which make up the core of the monetary union (the Eurozone).

According to some researchers, one of the most important problems of the Eurozone is a misconceived institutional system (Arestis, Sawyer 2011, Grosse 2011). One of its features is the centralisation of the monetary policy on the union level, with the decentralisation of fiscal policy on the level of member states (Dyson 2008, Oręziak 2009, Grosse 2011). The EU lacks proper financial instruments to allow for structural changes in the Eurozone economy on the one hand and to react to critical situations in the individual Eurozone countries on the other. The cohesion policy is unfortunately not a sufficient tool (Grosse 2011). It is also pointed out that the joint monetary policy in the Eurozone increases the differences between fiscal policies, which are the basic instrument for spurring the economy. This diversity is additionally an effect of differences in the social and economic institutions in place in each country and in the phases of the business cycle. Regulation measures taken by the European Council supposed to ensure the stability of the joint currency are seen as insufficient, as they discipline the member states only to a limited extent, especially that they were temporarily suspended in the face of the crisis (Grosse 2011). Structural differences between individual economies and the related differences in the effects of monetary policy cause economic

troubles in some areas. These troubles are to a large extent a consequence of the fact that in the currency union, state governments cannot improve export competitiveness, e.g. by devaluating the currency exchange rate.

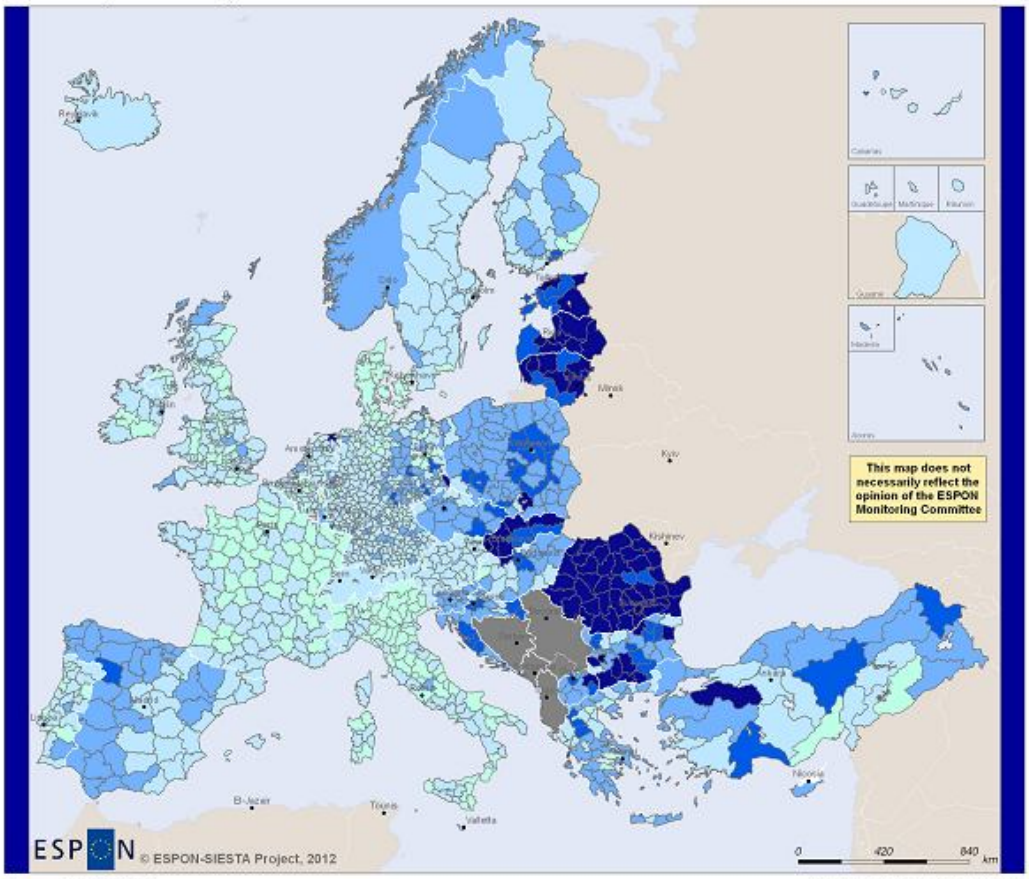
Europe has an only alternative scenario for its future development: to deepen cooperation and integration in order to adapt to the changing world and jointly overcome the symptoms of the crisis.

In any case, today's Europe, especially Western Europe, has had a rather rough experience with the effects of the crisis and is anything but an economic and social paradise. Still, in many areas it remains a power able to compete for a leading position in the world. To overcome the current, unfavourable trends it needs both decisive action and self-confidence (Orłowski 2011).

Map 3

Change in Gross Domestic Product per inhabitant in PPS, 2000-2008

Percentage of change



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Regional level: NUTS 3, NUTS 2 and NUTS 0
Source: EUROSTAT
Origin of data: EUROSTAT, 2012
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% change 2000-2008

- < 0
- 0 - 20
- 20 - 40
- 40 - 60
- 60 - 80
- > 80
- No data

NOTE:
DK is 1999 to 2008, ES and TR are 2000 to 2008,
UKM5, UKM50, UKM6 and UKM62 are 2003 to 2009, HR is 2001 to 2008.
TR is shown at NUTS 2 level. IS, NO and CH are shown at state level.

Only the following regions shown a negative change in GDP per capita in PPS in the period 2000-2008: BE345, DE117, UKD42 and UKD53

2.4. Growth measured as GDP per capita. Change 2007-2011

The gross domestic product (GDP) is one of the primary indicators of a country's economic performance. It is a measure of the economic activity, defined as the value of all goods and services produced less the value of any goods or services used in their creation. The calculation of the annual growth rate of GDP volume is intended to allow comparisons of the dynamics of economic development both over time and between economies of different sizes (EUROSTAT, 2012). A measure of the total output of a country that takes the gross domestic product (GDP) and divides it by the number of people in the country. The per capita GDP is especially useful when comparing one country to another because it shows the relative performance of the countries with different sizes. A rise in per capita GDP signals growth in the economy and tends to translate as an increase in productivity and growing wealth of the citizens of a particular country (International Monetary Fund, 2011). PPS are used to equalise the purchasing power of different national currencies through Purchasing Power Parities, thus allowing for meaningful cross-country comparisons.

GDP per capita is subject to constant change, usually the increase. The indicator of these changes is recognized as one of the most important macroeconomic variables, as it allows showing trends, it helps to assess the stage of the economy business cycle and even in what (relative) state the economy currently is. For this reason, changes that occurred in GDP per capita in European countries in times of economic crisis in the years 2007 - 2011 have been subject to detailed analysis. GDP per capita in the initial and final year of this analysis was obtained in PPS. Furthermore, changes that had occurred in this respect in countries subject to the above mentioned analysis were calculated. Therefore, the values above zero of the calculated ratio show that the economic situation of the country has improved and that the country is able to cope with the economic crisis. However, values below zero indicate the deepening crisis and difficulties in economic development.

MS	*Country*	*GDP per capita (% of change)*
MK	Macedonia	15.58
PL	Poland	12.50
MT	Malta	11.05
CH	Switzerland	9.72
RO	Romania	9.62
SK	Slovakia	8.88
HU	Hungary	7.14
BG	Bulgary	7.00
LV	Lithuania	5.76
TR	Turkey	5.31

Table 8. The countries with the highest GDP per capita 2007- 2011

MS	*Country*	*GDP per capita (% of change)*
IE	Ireland	-15.72
IS	Iceland	-8.28
EL	Greece	-8.00
UK	United Kingdom	-6.19
SI	Slovenia	-4.98
ES	Spain	-4.96
EE	Estonia	-4.00
CZ	Czech Republic	-3.38
IT	Italy	-2.69
HR	Croatia	-2.63
CY	Cyprus	-1.29
PT	Portugal	-1.02
FI	Finland	-0.68
NL	Netherlands	-0.60

Table 9. The countries with negative GDP per capita 2007-2011 (percentage of change)

MS	*Country*	*GDP per capita (% of change)*
FR	France	0.37
EU27	European Union 27	0.40
LU	Luxembourg	0.44
SE	Sweeden	1.60
DK	Denmark	2.61
BE	Belgium	2.77
DE	Germany	4.15
AT	Austria	4.53
LT	Latvia	4.73
NO	Norway	4.86

Table 10. The countries with the lowest positive GDP per capita 2007-2011.

The economic crisis which has been visible since 2007 affects the European countries as well, even though it began in the USA. Overcoming the crisis has become one of the major challenges that authorities of particular countries had to face. The effectiveness of the efforts undertaken by countries, however, are determined by many factors, such as: diversity of the management model, global financial relations, currencies available to those countries and many others. The analysis of map 4 indicates that there are three countries that best coped with the crisis. In the difficult years of 2007-2011 they had over 10% growth in GDP per capita in PPS. The undisputed leader here is Macedonia (percentage point difference = 15.58%). Right behind Macedonia came Poland (12.50%) and Malta (11.5%). The top ten best performing European countries which best deal with the global economic crisis includes also Romania, Lithuania Bulgaria, Turkey, Slovakia, Switzerland and Hungary (tab. 8). In all these countries, the value of the calculated ratio exceeded 5 %. These are mostly countries from the eastern part of the analyzed area which recently joined the structures of a unified Europe and which use their national currencies.

Unfortunately, not all European countries have coped well with the economic growth during the crisis. The years 2007-2011 proved to be difficult for the economy of Ireland, where there was more than a 15 % decrease in GDP per capita. The economic crisis has not spared Iceland and Greece (-8.28 and -8.0 percentage point difference respectively), United Kingdom (just over -6%), but also Slovenia, Spain, Estonia, the Czech Republic, Italy, Croatia, Cyprus, Portugal, Finland and Netherlands (tab. 9). Among the 10 countries which had economic problems during the crisis you could find countries of various sizes (measured by area and population), different levels of socio-economic development, different currencies and at different levels of globalization.

Iceland's problems stemmed primarily from strong financial links with the United States. Ireland and Great Britain were also involved in global financial flows where the collapse in real estate deepened the crisis. Difficulties in the construction sector are also seen as one of the main causes of the crisis in Spain.

The EU27 hardly grew (0.4%), however it is certainly better than the U.S., where the difference of percentage points of GDP per capita in 2007-2011 was -1.59 %. France and Luxembourg had a similar behavior, while Sweeden, Denmark, Belgium, Germany, Austria, Latvia and Norway increase the GDP in values between 1 and 5 % (tab. 10).

In the context of increasing globalization, internationalization of enterprises and increasing cross-border flows of production factors (capital, labor, knowledge) and their effects (goods and services), the difference between endogenous and exogenous determinants of economic development is slightly getting blurred. As a result, the economies of countries and regions are exposed, to a greater extent, to external impulses of the increase or decrease. A drop in demand for goods and services in the years 2007-2011 was this kind of stimulus and it moved (from a geographical point of view) in stages (Pancer-Cybulska, Cybulski 2011):

- to the European Union from the U.S. (the first symptoms of the crisis were observed in 2007) and to other most important economies in the world,
- to particular EU member states and other EU member states and other business partners,
- to regions and micro-regions at the level of the state budget, EU member states and other countries.

The stages below refer to the phases of the crisis. They are highlighted with regard to different factors that caused them, namely (Pancer-Cybulska, Cybulski 2011):

- mid 2007 - the "bubble" in the U.S. mortgage and housing market bursted; mass discount breached the condition of the U.S. banking system,
- mid 2008 - the second financial "bubble" bursted - this time in the U.S. and the European debt market - the world most serious investment banks, insurance companies and investment funds faced solvency problems. In this phase, the crisis has moved from the financial sphere to the other sectors of the economy,
- Early 2009 - the crisis of public finances touched next several countries from the Eurozone (Greece, Ireland and then Portugal, Spain and even Italy), members states outside the Eurozone (Latvia) and outside the EU (Iceland).

This external decrease stimulus, also known as a shock, reached Europe and caused a downward spiral of interrelated and synergistic consequences which are both manifestations and results of the crisis. In particular these are (Pancer-Cybulska, Cybulski 2011):

- bankruptcy and insolvency of banks and enterprises,
- reduction in employment,
- decline in domestic demand with an increasing household savings rate (reduction in consumption),
- reduction in the volume of consumer loans, supply import, energy and capital goods,
- reduction in the propensity to invest and a Keynesian mechanism of savings and investment rates gap,
- tightening competition, lower margins and profitability,
- price reduction in sensitive sectors (flexible), real salaries reduction, disinflation and particularly dangerous deflation,
- decline in sales, production and tax revenues,
- increased unemployment; migrant workers return to their countries,
- increased social spending,
- emergency programs for the financial sector, and even for the whole countries,
- loosening of the rules of any state aid,

– growing public finance deficit (increasing spending, decreasing income) and an increase in debt service (bond buy-back price)

– drastic austerity programs - cuts in employment and in public sector spending, including investment and R&D,

– the threat of insolvency of the countries,

– abrupt shift of global wealth and economic power of countries as a result of asymmetric shocks (on a global scale, asymmetry developments concerned mainly new Asian economic powers, especially China and India).

These effects and at the same time causes of the global crisis affected all European countries, including highly developed ones. Even Poland being a leader among European countries in coping with the crisis had to face all the above consequences. It avoided recession mainly due to an unusually high level of domestic demand for goods and services that made up for the consequences of the decline in exports. External demand fell to a much lesser extent than in the world due to a stabilizing floating exchange rate of the Polish zloty. This resulted in a reduction of imports and weakened the disinflationary pressure. Some analysts believe that weak internationalization of the economy and the delay in entering the Eurozone were the main reasons why Poland avoided recession. However, these factors may also undermine the potential for accelerating economic development after overcoming the world crisis (Pancer-Cybulska, Cybulski 2011).

Although the economic crisis started in the U.S., it is difficult to look for its causes only in U.S. government policies and irresponsible behavior of the local financial institutions. There is no doubt that the European authorities, in particular the European Commission, are responsible for this deep crisis in Europe. This policy, as defined in the Lisbon Strategy, was under the strong influence of neoliberal economic ideology which created conditions that led to the emergence of crises (Dymarski 2012). In particular, this included liberalization, deregulation, privatization, managing with market-type mechanisms (market mechanisms introduced into the public sector) and the fetishisation of competitiveness (Dymarski 2012). According to some researchers, the Lisbon Strategy led to such a situation where economic development in Europe was dependant on particular interests of the financial sector whose main role should be to serve the real economy (Dymarski 2012). The consequence of such a policy is the current crisis, chaos and increased social polarization (EuroMemo Group, 2012). Only then did the politicians wake up and take action to avoid similar situations in the future. These measures include establishing the European System of Financial Supervision (operating since 2011) and starting the legislative

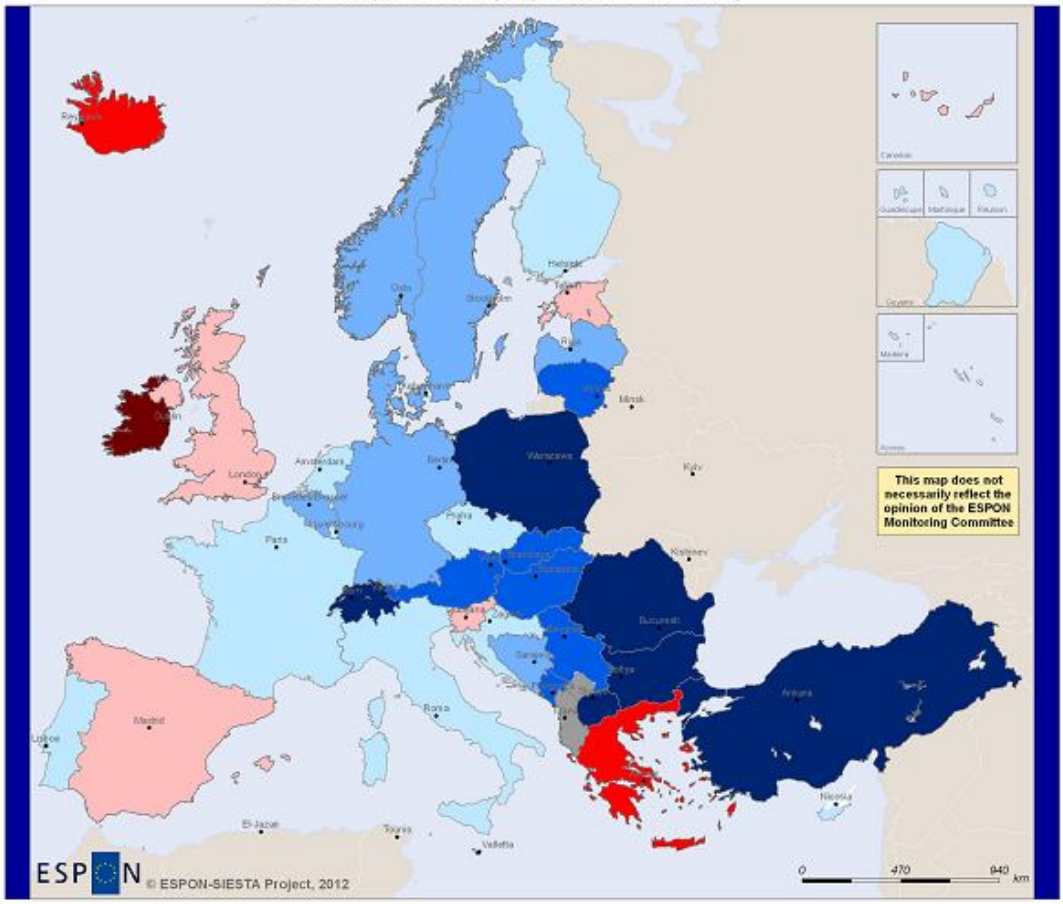
process on the European Market Infrastructure Regulation (EMIR), amendments to Capital Requirements Directive IV and Capital Requirement Regulation IV. These regulations, delayed by at least 10 years, challenge the whole doctrine of the free financial market, increasing supervision over the institutions of this market (Dymarski 2012).

And so, according to the latest World Bank report entitled Golden Growth, the continent needs a new economic model to be able to regain growth. Pursuant to the provisions of this report, the European model has lost its attractiveness due to a rapid growth of innovation in America and unprecedented efficiency in Asian countries. Critics of Europe, including European economists believe that a drastic increase in public debt and deteriorating demographic indicator will be a burden for the European Union, unless it decides to change its economic model. The World Bank also warns that major reforms should not be implemented precipitately. It also draws attention to the danger of the loss of confidence in the value of its own economic model. There may be a threat that drastic restructuring of Europe may deprive it of its uniqueness, namely an attractive model for development and replace it with another, much weaker one (The World Bank, 2011). Pursuant to the provisions of this report, the biggest threat to Europe is the situation in its southern part, where economic growth has slowed down, productivity and revenues are declining and there are more and more people reaching retirement age. It seems that the European authorities should focus on this region in particular

Map 4

Change in Gross Domestic product per capita in PPS, 2007-2011

Percentage of change (Index EU27=100)



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Regional level: NUTS 0
Source: EUROSTAT
Origin of data: EUROSTAT, 2012
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Percentage of change 2007-2011

< -12	0 - 4
-12 - -8	4 - 8
-8 - -4	> 28
-4- 0	No data

2.5. Labour productivity at regional level, 2008

Labour productivity measures the amount of goods and services produced by each member of the labour force or the output per input of labour. It can be measured in a variety of ways. For structural indicators, it may be measured by gross domestic product (GDP), expressed in terms of the purchasing power standard (PPS), either relative to the number of employed people or to the number of hours worked (EUROSTAT, 2012). In this study, labour productivity is expressed in GDP per one employee in 2008. This indicator is intended to give an overall impression of the productivity of regional economies expressed in relation to the European Union (EU-27) average. If the index of a region is higher than 100, this region's level of GDP per person employed is higher than the EU average and vice versa. Please note that the term "persons employed" does not distinguish between full-time and part-time employment (EUROSTAT, 2012).

Labour productivity reflects how efficiently labour is combined with other factors of production, how much input is available per worker and how fast embodied and disembodied technological changes take place. This makes labour productivity a good starting point for the analysis of some of these factors (Measuring Productivity, 2011).

MS	*Region*	*Labour productivity (%)*
UK	Inner London	302.00
LU	Luxemburg	298.96
BE	Arrondissement of Brussels-Capital	256.20
NL	East Groningen	172.73
DE	Hamburg	171.37
FR	Paris	164.09
DE	Bremen	161.84
NO	Norway	159.62
AT	Vienna	155.78
CZ	Prague	145.67

Table 11 The regions with the highest labour productivity in 2008 (EU27=100%)

MS	*Region*	*Labour productivity (%)*
RO	Nord-East	28.50
TR	Agrı	28.90
BG	Plovdiv Province	31.13
BG	Vidin Province	32.24
BG	Veliko Tarnovo Province	32.97
RO	Sud-Vest Oltenia	35.07
TR	Trabzon	36.33
TR	Erzurum	37.78
PL	Lubelskie	38.21
BG	Burgas Province	38.28

Table 12 The regions with the lowest labour productivity in 2008 (EU27=100%)

MS	*Region*	*Labour productivity (%)*
ES	Canary Islands	96.12
NL	Veluwe	95.96
IT	Sassari	95.71
UK	West Yorkshire	95.62
PT	Região Autónoma Da Madeira	95.47
FI	Southern Savonia	95.27
FR	Charente	95.23
IT	Foggia	95.23
UK	East Anglia	94.79

Table 13 The regions with the average labour productivity in 2008 (EU=100) (median=95,47)

An analysis of spatial variation in labour productivity in European regions gives an indication of how much the situation in individual regions differs in this respect from the EU-27 average, and to a certain extent, it also shows the diversity of the competitiveness among European regions, and thus allows to estimate the potential of one of the most important factors

of economic growth which is much needed for the EU in the economic crisis. Improving labour productivity in individual regions, as well as attracting investors is attributed to the fundamental importance of improving economic performance and helping underdeveloped regions catch up (Working for the regions, 2008). However, this requires the ability to use the synergy that exists between labour productivity and labour quality, and the level of employment. Efforts to increase the pace of labour productivity growth and to raise employment levels should be accompanied by improving the attractiveness of jobs, the quality of jobs and reducing the number of low-paid workers (Council decision on guidelines for the employment policies of Member States, 2005).

When analyzing the spatial distribution of labour productivity in European regions in 2008, certain regularity can be easily noticed. There are clear differences in this respect between the eastern and western parts as well as the northern parts of the analyzed area. In the eastern part there are regions of very low labour productivity (less than 50% of the EU-27 average) and low labour productivity (50-75% of the EU-27 average). These are generally regions of the countries which joined the EU in 2004 or later and the candidate countries. The worst situation is in the eastern regions of Poland, Turkey, and in almost all of Romania and Bulgaria. The situation is slightly better in this respect in Lithuania, Latvia, Estonia, in the western regions of Poland, the Czech Republic, Slovakia, Hungary, Slovenia, Macedonia and the western regions of Turkey. Only some regions of this part of Europe have obtained an average level of labour productivity (75-125% of the average productivity of the EU-27), or a level even higher than the average level of labour productivity and these are mainly the areas of capital cities (e.g. Prague, Bratislava, Bucharest, Sofia).

A significantly higher level of labour productivity is represented by western and northern parts of the analyzed regions which belong to the former EU-15 countries, although even among these regions there is certain variation. Here too, the highest level of productivity in relation to the EU-27 average is represented by major towns and cities, apart from Norway which is not a member of the EU. A significantly lower level of productivity (50-75% of the EU-27 average) is present in the westernmost regions of Europe, especially in northern and western parts of Great Britain, and Portugal. The remaining regions of the European countries represent a level similar to that of the EU-27 average level of labour productivity.

A detailed analysis of regional productivity of the analyzed area presents itself as follows: Inner London (302%) is at the head of the 10 regions with the highest labour productivity, more than three times the average of the EU-27 (tab.11). Luxemburg (298.96%) has a slightly lower level of

labour productivity. Then, there is the following order : Brussels, East Groningen, Hamburg, Paris, Bremen, Vienna and Prague. Norway is also included in this group. Therefore, the greatest labour efficiency is obtained in large cities and metropolii of continental and world level, which is confirmed by the fact, that cities play a fundamental role on the economic map of the world, as they are a source of economic growth, innovation, creativity and competitiveness (Parysek 2006).

The lowest labour productivity in relation to the EU-27 average occurs in some regions of Romania (mainly North-East and South-West Oltenia), Bulgaria (mainly Plovdiv Province, Vidin Province, Veliko Tarnovo Province and Burgas Province), Turkey, which is trying to join the EU (e.g. Agri, Erzurum and Trabzon), but also Poland (especially Lubusz Voivodeship) (tab. 12).

The average level of labour productivity in the analyzed area, measured by the median value (95.47) is represented by the Autonomous Region of Madeira, Portugal (tab.13). The following regions have similar, yet slightly higher values: West Yorkshire (UK), Sassari (IT), Veluwe (NL) and the Canary Islands (ES), whereas Southern Savonia (FI), Charente (FR), Foggia (IT) and East Anglia (UK) have slightly lower values. The average value, lower than the median and amounting to 92.86% of the average productivity for EU-27 countries, indicates that in most of the analyzed regions, labour productivity exceeds the average, however the average at a level of less than 100% indicates that in regions of the EU candidate countries productivity differs significantly from that of the EU-27 average.

Some researchers think that, since 1950 Western Europe has become a characteristic convergence club. In the mid-twentieth century, labour productivity in the then poorest countries of the region was almost three times lower than in the case of the richest countries. At the end of the twentieth century, the scale of the variation decreased to such an extent that the level of labour productivity in the richest countries was, at the most, twice as high as in the poorest countries. This was made possible due to much faster growth in the so-called peripheral countries, i.e. Italy, Spain, Greece, Portugal and Ireland. When attempting to explain the reasons for the equalization of income and productivity in the years 1950 – 2000, it is essential to point to the four potential types of convergence which may have occurred in Europe in the past years (Caselli, Tenreyro 2005, Krusell et. Al 2005, Aghion, Howitt 1992, Bukowski, Zawistowski 2008) :

- neoclassical convergence - described by the neoclassical growth theory which posits that countries with lower initial capital stock develop faster, due to higher return on capital. This concept may explain the observed rate of convergence, only if capital is

considered in a broader sense, also including human capital (Mankiw, Romer, Weil 1992),

- making up for the technological backwardness as predicted by the theory of endogenous growth (Aghion, Howitt, 1992). Convergence, in this case is the result of the process of imitating the technological solutions of more technologically advanced countries by the less-developed countries. This is possible due to the fact that the cost of imitation is significantly lower than the cost of innovation,
- international trade, which may lead to convergence if countries which are joining the mutual market are less integrated with the countries already in it. Only then will relative profit from international trade be higher than that of the countries already present in the mutual market,
- structural transformation resulting from intersectoral reallocation of production factors. Convergence of this kind is possible due to the fact that, transfer of capital and labour resources from low productivity sectors to high productivity sectors, in and of itself, raises the average level of productivity of a given country.

From the standpoint of the economic theory, the reallocation of production factors (capital and labour resources) was possible due to the implementation of new technology, or even thanks to the process of adapting whole sectors which were characterized by high productivity. Reallocation may also be associated with the accumulation of capital, if the flow of labour follows in the direction of capital-intensive sectors of the economy (Bukowski et. al., 2008).

Extending the borders of the EU in the twenty-first century has led to the fact that, now a different group of countries may be referred to as peripheral countries, which is clearly illustrated in the results of the analysis. These are countries of Eastern and Central Europe. In these countries labour productivity is clearly different from the EU-27 average, however improvements in this respect may be expected, due to the ongoing processes of convergence.

Various forms of investment must be involved in every social process of production. In general, they are divided into human labour input and objectified labour (materials, tools, surface area, etc.). In a particular production process, the quantity and quality of human labour are dependent on tool construction, the level of technological advancement, on the established forms of the division of labour, the system of incentives, state policy etc. Constant growth of the level of productivity is a sign of an efficient social process of management. Labour productivity is

therefore a measure of efficiency management. If there is a fall in labour productivity, it is a sign of inefficient action. Therefore, the aim of every social process of production is to obtain a sufficiently high level of productivity, and any structural transformations of that process are aimed at creating conditions for improving that productivity. The higher labour productivity is, the lower its costs are. Labour productivity can be increased, even when the number of employees or the amount of production does not change. It is enough to lower the costs of production, by reducing energy input, buying raw materials at a profit or reducing frozen assets (an increase in capital productivity) (Bukowski, Zawistowski 2008). Being productive means to optimize costs and, if necessary, lower prices, which results in competitive advantage (Management for Productivity ..., 2012). Therefore, labour productivity shapes the competitiveness of regions, which in turn affects the pace of socio-economic development of a given region and the wealth of its inhabitants.

Among the factors that determine the level of labour productivity, the following are especially mentioned: the quality of machines and equipment available to employees, work organization, the level of qualifications and motivation to work. In the case of individual labour productivity such factors as an employee's personal characteristics are of great significance (industriousness, diligence, the ability to organize one's work). In the case of aggregate measurements (e.g., social productivity of labour), the information which is of major importance in the current economy is that on productive and human capital, or on the current economic system.

It may therefore be assumed that the growth of productivity in lagging regions will be determined primarily by: (1) the level of technological advancement, and (2) the quality of human capital, which are two quite closely related factors. Technological progress favoring a skilled workforce is concentrated in industries that require highly specialized skills.

Technological progress may increase labour and capital, or it can be neutral towards these basic factors of production. Technology which increases labour, raises its productivity and enables the production of the same amount of product, while using less labour input (Bukowski, Dyrda 2008). However, it must be borne in mind that at the same time technological progress shapes the labour market which may have its consequences in the level of employment. Many studies show that, despite the fact that in the long run technological progress leads to an increase in labour productivity, product, and hence employment (see, e.g., Mortensen, Pissarides (1998), the short-term reaction of the economy to technological shock may manifest itself in job losses. The behavior of the labour market shortly after the technological shock strongly depends, inter

alia, on the ability of the workforce to adapt to new technologies in the production process (Bukowski, Dyrda 2008).

Thus, an improvement in labour productivity has its social dimension and requires, among other things, increasing investment in human capital. There are too many people who, due to a lack of or due to the fact that they do not possess appropriate professional skills, cannot enter or remain in the labour market. In order to increase the chance of employment for all age groups, and raise the level of labour productivity and quality, the EU needs increased and more effective investments in human capital and constant training for the benefit of individual employees, enterprises, the economy and society. The productivity of enterprises, but also entire economies, is dependent on building and maintaining a workforce which is capable of adapting to change (Council decision on guidelines for the employment policies of Member States, 2005).

Labour productivity is another important aspect of society. A rapid increase in earnings is not possible without increasing labour productivity, which is mainly determined by the use of new technologies (Bukowski, Dyrda, Smith, Pelle, 2008).

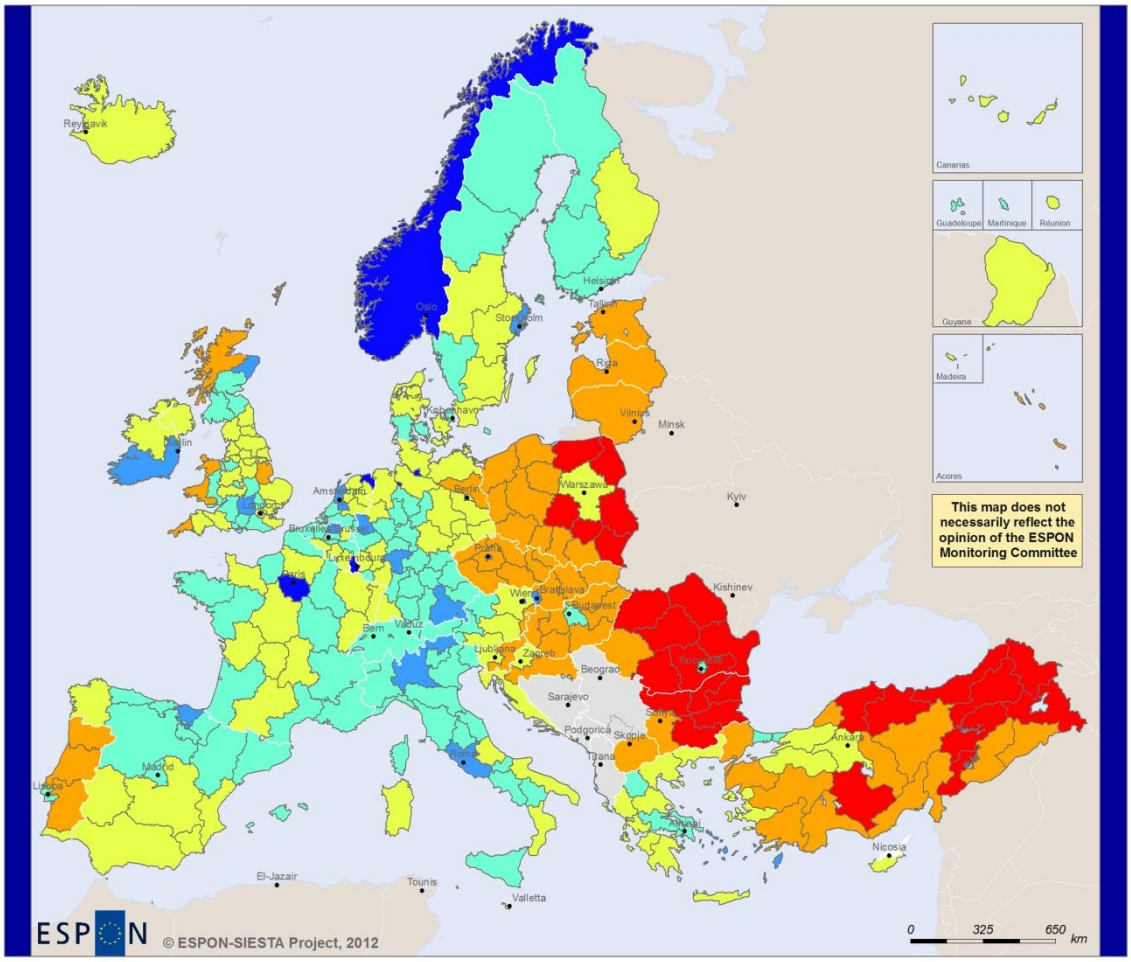
Some researchers believe that it is the technologies of the ICT sector (Information and Communication Technologies) that will most increase labour productivity in the near future. Brian W. Arthur, claims that digitization creates a second economy, one that is extensive, automated and invisible, and which brings the greatest changes since the times of the industrial revolution. It is assumed that in the long term, the "second economy" will translate into an average of a 2.4 percent increase in productivity of the entire economy (Brian Arthur 2011).

In conclusion, it should be stated that many regions of Europe, especially Eastern and Central Europe, require an increase in labour productivity. Achieving this goal is easier when the starting point is a very low level of productivity. Further improvements require major systemic changes, spending on education, research and development. Overcoming barriers to labour productivity growth, such as under-funded companies, low social capital, poor management, high energy costs and the technological gap, is now one of the major challenges which regional and national authorities have to face. All indications are that simple reserves of labour productivity growth have already been exhausted.

Map 5

Labour productivity at regional level 2008

Percentage of EU27 = 100



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Regional level: NUTS 0 and 2
Source: SIESTA calculations using EUROSTAT data
Origin of data: EUROSTAT, 2011
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Labour productivity(EU27=100)

- < 50
- 50 - 75
- 75 - 100
- 100 - 125
- 125 - 150
- > 150
- NO DATA

NOTES:
Labour productivity per person employeed was calculated as the ratio of the regional GDP in milions of PPS between the total number of employees.

2.6. Contribution of medium-tech and high-tech products to the trade balance.

Works on preparation of international standardised methodological recommendations with regard to statistical surveys on high technology are coordinated by OECD. Two methods are usually applied in the analyses concerning high technology: the sector approach and the product approach. OECD is currently using two classifications of industries based on R&D content, also called in literature classifications of industries based on global technological intensity. The first list for the years 1970-1980 divided industries into three categories: high technology - including fields in which expenditures on R&D activities constituted more than 4% of sales value, medium technology - including fields in which expenditures on R&D activities constituted from 1% to 4% of sales value and low technology - including fields in which expenditures on R&D activities constituted 1% or less of sales value. The new list for the years 1980-1995 included 4 following categories: high technology, medium-high technology, medium-low technology and low technology. As for the product approach which is the development and supplement of the sectoral approach, high technology products list on the basis of Standard International Trade Classification (SITC) approved by EUROSTAT in April 2009 in connection with alteration from SITC Rev.3 to SITC Rev.4, including 9 product groups, is currently used. The notion of high technology is mainly used in relation to analyses regarding foreign trade. Indicators on foreign trade in the field of high technology were originally designed as measures of efficiency and impast of R&D activities. However, lately their usefulness in analyses of issues concerning competitiveness and globalisation has been underlined. The contribution of high-tech industry to the manufacturing trade balance of a given country is treated as a very important indicator of competitiveness of its economy on the international arena (EUROSTAT 2012, www.stat.gov.pl).

This map shows the percentage of high technology industries in the manufacturing trade balance in selected EU countries in 2007. The manufacturing trade balance reveals the economy's structural strengths and weaknesses in terms of technological intensity. It indicates whether industry performs relatively better (or worse) than total manufacturing and can be interpreted as an indicator of revealed comparative advantage that is based on countries' trade specialisation. The indicator is expressed as a percentage of total manufacturing trade in order to eliminate business cycle variations. A positive value for a country indicates a structural surplus, while a negative value indicates a structural deficit (OECD, 2009).

MS	Country	Percentage of manufacturing trade
CH	Switzerland	7.8
IE	Ireland	4.8
UK	United Kingdom	2.0
HU	Hungary	1.7
FR	France	1.0
IS	Iceland	0.9
SL	Slovenia	0.8
DK	Denmark	0.6
SE	Sweden	0.3

Table 14 The countries with the lowest contribution of high-technology industries to the manufacturing trade balance in 2007

MS	Country	Percentage of manufacturing trade
TR	Turkey	-4.3
PL	Poland	-3.9
LU	Luxembourg	-3.5
ES	Spain	-3.3
PT	Portugal	-3.3
IT	Italy	-3.2
DE	Germany	-2.8
GR	Greece	-2.8
SK	Slovak Republic	-2.6

Table 15 The countries with the highest contribution of high-technology industries to the manufacturing trade balance in 2007

MS	Country	Percentage of manufacturing trade
BE	Belgium	-0.8
EE	Estonia	-0.9
AT	Austria	-1.4
NL	**Netherlands**	**-1.7**
FI	**Finland**	**-1.7**
CZ	Czech Republic	-1.9
NO	Norway	-2.0
SK	Slovak Republic	-2.6

Table 16 The countries with average contribution of high-technology industries to the manufacturing trade balance in 2007 (median = -1.7 %)

European countries included in the analysis in 2007 were quite diverse in terms of contribution of the high-tech industry to the trade balance, where the share ranged from minus 4.3% in Turkey to 7.8% in Switzerland. Both of these countries are not EU members states. The most innovative and competitive countries in Europe include above-mentioned Switzerland and Ireland, where the contribution of the high-tech industry to the trade balance is significantly lower (4.8%) are Great Britain (2.0%), Hungary (1.7%) and France (1%). In other countries this share is lower than 1%. The positive balance of the high-tech industry in manufacturing trade was recorded in 2007 in such countries as Ireland, Slovenia, Denmark and Sweden. It is therefore a group of leading countries in Europe in terms of innovation, the level of technological advancement, and thus the competitiveness of the economy. It is worth noting that in addition to countries traditionally considered economically highly developed, such as: Switzerland, Great Britain and France, this group included also Hungary, thus one of the countries of the former Eastern Bloc, widely regarded as less developed economically than the former EU-15 countries (tab. 14). Therefore, there are much fewer countries in Europe with a positive balance and a surplus of the high-tech industry in the trade balance (9 of 25 analyzed) than the countries with a negative balance (64% of the analyzed countries).

Poland (-3,9%), apart from Turkey, is the most underdeveloped country in terms of innovation and technological advancement of the measured contribution of high-tech industry to the trade balance (tab. 15). Not much better results, however, were visible in the following countries: Luxemburg, Spain, Portugal, Italy, Germany, Greece and the

Slovak Republic, in which the share was lower than -2%. Therefore, this group included both countries economically developed, such as Germany or Luxembourg, and the less economically developed ones coming from the former Eastern Bloc, such as Poland and the Slovak Republic, whose competitiveness in the international arena, however, should be evaluated not positively.

There is a numerical superiority of states with a negative balance of high-tech industry in the manufacturing trade over the countries with a positive balance. This is the reason why the calculated median of the analyzed countries (average value) has a negative value (-1.7%). This kind of index value was also recorded in the Netherlands and Finland (tab. 16). Slightly higher values were recorded in Austria, Estonia and Belgium, while a bit lower - in the Czech Republic and Norway. Thus, one can assume that these are the countries with the average level of innovation, technological advancement, and, ultimately, competitiveness. It is worth noting that the median value is lower than the average (-0.8%). Therefore, if average value calculated for the analyzed states was the average reference level, many more countries would have to be classified as those with average and low innovation and competitiveness.

It is difficult to find any regularity in terms of spatial distribution of European countries with regard to their level of technological advancement. One might assume that Western and Northern Europe is in this respect in a better situation than Eastern, Central and Southern Europe, with the exception of Hungary.

We could conclude from this analysis that Europe has a rather low position in the international arena in terms of level of innovation, technological advancement and economic competitiveness. In 2007, however, the average contribution of the high-tech industry to the trade balance in OECD member countries was also negative (-0.3%). Positive values were recorded in the U.S. (3.3%), Mexico (3.1%), Korea (3.0%) and Israel (1.6%). Countries such as Japan (-2.2%), Canada (-3.0), China (-4.8%), Australia (-5.4%) or Russia (-7.2%) had a negative balance (OECD, 2009). We have to bear in mind the fact that 2007 was the year when economic crisis began and that it had a particularly strong impact on European countries, favouring in this way the so-called emerging markets such as China and India. Taking action to improve innovation and competitiveness of the economy should therefore be the aim of both European economies and the EU as a whole. This is crucial, because when we adopt M.E Porter's certain system of relations between innovation, competitiveness and prosperity, competitiveness is the result of innovation, while it is also the source of wealth (The competitiveness of the sector ...., 2009).

In the era of globalization, when the aspect of competitiveness is considered in an international context, technological changes become more important as key factors of comparative advantage. The high-tech sector due to a high intensity of research and development processes is a special sector. When we analyse it, we obtain not only information about the influence of R&D activity, but also about economic competitiveness and ability to absorb the research results in the areas of science and technology. High-tech includes science-based areas with a high intensity of research and development processes. These areas are characterized by high innovation, capital intensity, a significant investment risk, short products and processes life cycles and high level of scientific and technical cooperation (Competitiveness of the sector ...., 2009).

Technologically advanced activities appeared as a result of industry and its structure transformation in economically highly developed countries. Countries which are now leaders in the development of the high-tech industry, continue to allocate large resources in intangible assets, i.e. research and development and communication techniques. The transformation of traditional industries into more science based industries is a result of a natural process of development. This natural development was supported by creation and development of such basic fundamentals of the economy as: physical and financial capital, and human resources (Kuciński 2002). Today, the term "industrial" should no longer refer only to industry in the narrow sense, but to a broader economic activity, production and services. The term "industrial" may apply to both tangible and intangible services (Grzeszczak 1999, Gurbała 2010).

The evolutionary nature of changes in industrial structure is justified by a high level of economic development. Apparently, it places less developed countries in a difficult situation, however, there are exceptions to this rule. In recent years there have been countries on the world map that have had spectacular successes (e.g. China, India, Taiwan, Ireland). These are the countries which, for various reasons, have not been able to develop a well-developed industrial structure. However, they caught up by omitting certain stages of development and focusing on highly innovative production to become competitive economies (Gurbała 2010). Thus, modern scholars are interested in ways that stimulate economic development in economically less developed countries, among other things through creating the most innovative industry.

In order to understand the mechanisms of processes that lead to economic success, we need one, coherent theory. However, such theory does not exist, and issues related to entering the path of innovation for economic growth are typically analyzed in terms of the following theory (Brenitz 2007):

– the developmental state and late-development theories - that help us understand the role of governments in economic growth of developing economies and those economies lagging behind,

– theories of globalization, associated with a global network of production and dispersal of the industrial production, which explain the development and its consequences for countries which face an ongoing globalization processes, in particular the formation of global production networks,

– innovation systems theories, explaining the ways in which innovation systems influence the innovative performance of different industrial systems and how the potential of the companies may be modulated by different decisions on production resources, R&D activities and interactions occurring in the industry.

In the development of the high-tech industry it is the state that plays a very important role, at various levels of its structure. However, some researchers believe that the role of nation-state in this regard is decreasing in favor of regional, local and transnational corporations. The more the country is retarded in development, the greater the role of government intervention (Brenitz 2007). In such countries it is faster to create foundations of the high-tech industry than it was in the leading countries. This is a result of expertise in the market, capacity to effectively anticipate its needs and the access to developed markets. In addition, less developed countries can gain an advantage when they have the latest technology (without having to purchase and upgrade the old one). These circumstances allow underdeveloped countries to achieve both economies of scale and diversity. These benefits are no longer experienced by the leading countries that had paid for the already obsolete infrastructure, with fewer opportunities in manufacturing (Brenitz 2007). The process of industrialisation of the leading countries takes place thanks to the creativity and inventiveness, while in the case of underdeveloped countries, which try to follow in the pioneering countries' footsteps, the process of industrialization takes place not on the basis of inventions, but rather improvements and innovation in the solutions that have worked in the case of the leading countries. Thus, in such countries this whole process of industrialization is possible when the followers learn something from the leaders (Gurbała 2010). The analysis of the relationships between the level of economic development and the deployment of the high-tech industry in the world also shows that countries that are lagging behind are privileged. This is because the high-tech industry is becoming the domain of the countries with lower GDP per capita, which seems to confirm, to some extent, the results of the analysis. The success of underdeveloped countries requires, however,

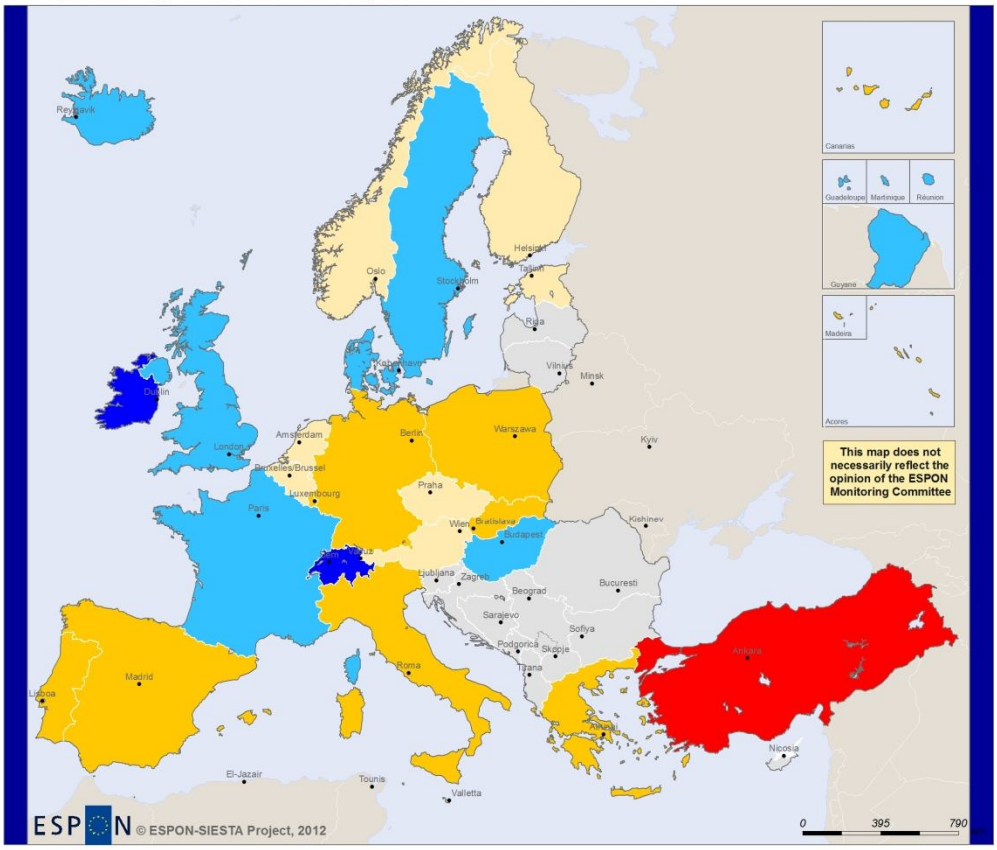
some changes at the institutional level, in particular, (1) professional bureaucracy that is able to plan development, but also (2) access to financial institutions that are able and willing to invest considerable resources over time (Gubała 2010).

The role of state institutions in countries with low levels of innovation and those with high levels must also be different. Generally, the active role of the state consists in shaping the industrial structure which focuses on export. The role of the government, however, should change freely and flexibly with the successive stages of transformation of the high-tech industry structure in the national economy - from an initiating and directing role to a supporting one. The development of the high-tech industry cannot be limited to the creation of new industrial space (shiny office buildings, high-speed Internet access, the presence of well-known transnational companies, etc.). It must include the development of certain rules and institutional basis for the development of the high-tech industry, which will consist of, among other things: low taxes, venture capital and skilled human capital. The order of their application is also crucial. Some of those instruments lie in the hands of national and local authorities, while others depend on the activities of business entities in the region. However, it is most difficult to affect those features which are not subject to rapid change, and are conditioned by social and cultural factors of the country or region (Gurbała 2010). Overcoming these barriers to the development may become, in some countries and regions of Europe, one of the greatest challenges of the 21st century.

Map 6

Contribution of high-technology industries to the manufacturing trade balance, 2007

As a percentage of manufacturing trade



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Regional level: NUTS 0
Source: OECD, STAN Indicators Database, 2009 edition.
Origin of data: OECD
© EuroGeographics Association for administrative boundaries

As a percentage of manufacturing trade

- < -4,0
- -3,9 - -2,0
- -2 - 0
- 0 - 2
- > 8
- No data

2.7. Number of Heaquarters of Trnasnational firms in the 2000 biggest world firms whose headquarters is in the LUZ

Transnational enterprises (corporations) (TNC) are companies that are mainly stock corporations that consist of parent company owning at least 10% stock or shares in foreign companies or foreign subsidiaries. The subsidiary can be: (1) a subsidiary – where at least 50% shares or stock is controlled by parent entity, (2) associates, where parent entity controls 10-50% stock or (3) branches controlled in 100% (UNCTAD, 2001). Transnational firms (corporations) operate in more than one country or nation at a time and are considered as some of the most powerful economic and political entities in the globalized world economy (United Nations Department of Economic and Social Affairs, 1973, Karliner 1997). Transnational Corporations exert a great deal of power. Many corporations are richer and more powerful than the states that seek to regulate them. Through mergers and acquisitions corporations have been growing very rapidly and some of the largest transnational firms now have annual profits exceeding the GDPs of many low and medium income countries.

The capital of transnational firms appeals to many national, regional and urban economies, because it allows social and economical development to accelarate. The economical success of cities in conditions of growing competition depends on their capability to attract and retain investment capital of transnational corporations, which allows cities to be included in the network of global connections (Wdowicka 2008). That explains why there is a strong competition between individual cities, manifested in creating attractive conditions for transnational firms to locate capital and headquarters there (Sala 2005).

This map represents location of 503 headquarters of transnational firms from 2000 biggest transnational firms located in 254 European cities, specifically in what is called larger urban zones (LUZ) in 2008. The statistical data used come from Urban Audit programme, where it is assumed that LUZ covers the functional urban zone centred around the town/city. Due to the lack of consistent delimitation method, spatial range of LUZ in individual countries corresponds NUTS levels 2, 3 or 4.

MS	*Urban area*	*GDP per capita in PPS*
UK	London	85
FR	Paris	60
UK	Glasgow	55
SE	Stockholm	24
ES	Madrid	22
FI	Helsinki	15
NL	Amsterdam	14
IT	Milano	13
GR	Athena	12
DE	Munchen	10

Table 17 The urban areas (LUZ) with the highest number of headquarters of 2000 biggest transnational firms in 2008

Among the most attractive European TNC headquarters locations are first of all capitals of countries with high human development index and globally important metropolises. London, with its metropolitan area, is undoubtedly the leader, where headquarters of 85 biggest global corporations are located (tab. 17). The second place is occupied by Paris (60 headquarters), while the third place is occupied by Glasgow (55 headquarters). These three cities make a sharp distinction, because the number of headquarters in other cities is half the number in in cities-leaders. Stockholm and Madrid house more than 20 TNC headquarters, while Helsinki, Amsterdam, Milano, Athena and Munchen 10 and more. In the following 66 European urban areas the number of TNC headquarters varies from 1 to 9. Generally, the TNC headquarters are located in 73 of 254 analysed cities. It means that over 70% of the analysed cities (exactly 181) is not an attractive location of headquarters for the biggest global corporations. This fact is also confirmed by the computed mean amounting 0, which indicates that in most urban areas in the analysed set the cities with no TNC headquarters are in majority. However, due to the fact that there is a great number of TNC headquarters located in cities-leaders the mean in the analysed set is 2.

When analysing the spatial location of LUZ of the cities depending on the amount of TNC headquarters located there, it is difficult to establish a pattern. What is clear is the fact that in countries that accessed EU in 2004 or later only three cities (Warsaw, Budapest, Prague) were able to attract TNCs to locate their headquarters there and thus be included in the network of global connections.

Social and economic changes in modern world resulting from globalization and integration of global economy pose many challenges to the authorities of cities and metropolitan areas. Urban area's management, which should guarantee retaining the ability to participate in international division of

labour work, requires abilities to react in a flexible way to investors' needs and to react quickly to changes in investors' needs. It is also necessary to formulate a strategy, which would allow authorities not only to regulate competitiveness of conditions of investment location, but also to build a network of relations between an investor (corporation) and an urban economy. Cities may benefit from incorporating in globalisation processes, because it is connected with economic potential growth, improvement of status or city image, improved access to new technologies, innovations and financial resources.

Transnational corporations have become the main entities of global economy since the beginning of the 90s of 20th century due to the role they play in the global network of economic relationships and due to the fact that they control international capital flow. Growing global competition, shortening of product life cycle, rising costs in R&D field, rising clients' demands, and also increase in knowledge and information significance in economy force corporations to change their strategies of operating on a global market and to look for new locations for their enterprises around the world in order to stay competitive on a global level. They search not only for locations suitable for manufacturing, but also for locations suitable for service sector, high-tech sector and innovation centres. What is more, TNCs look for new locations where primary functions (such as headquarter function), usually connected with the investor's country of origin, could be performed. The firms that operate within many sectors pay attention more and more to advantages of concentration of certain operations in different regions due to the benefits derived from local resources, costs, competence or/and quality of labour. Thus, foreign investments, including TNC, associated so far with countries with high human development index, more often choose developing countries for their operations, as they provide stable political and economical environment and also low labour costs yet ensuring high labour quality (Wdowicka 2008). Achieved benefits allow corporations to increase expenditures on R&D, and, consequently, they allow to implement new technical and technological solutions in industrial processes, thus increasing level of competitiveness. It can be assumed that the TNCs' decisions where to locate their operations affect mainly growth of economic potential and cause economic, social and cultural transformations.

It seems though that different strategies are used to locate subsidiaries than to locate the headquarters. The boards carry out primary decision functions such as: outlining strategic directions of development, determining the directions and intensity of technical and technological innovations flows, extent of potential credit, looking for new locations for

enterprises and disposal of those existing, sustaining existing markets and looking for new ones. The role of the board is particularly essential in conditions of global crisis, which significantly influenced the change in the global corporations structures. Research carried out by Zioło (2011) indicates that the sector that provoked crisis is the most damaged one, namely: corporations offering loans, insurances, investments, but also transport, means of production, durable goods manufacturing, hotels and restaurants. The least damaged are the corporations operating in the sector of public health, drug and biotechnology manufacturing, telecommunication services and food industry. This can be explained by the fact that people could manage limited financial resources, which in global crisis conditions were used first of all to satisfy the basic existential needs, what seems obvious.

The changes in TNCs sector structures, that resulted from global crisis, were accompanied by diversification of global economy characterised by the change of headquarters' location and TNCs economic potential. This diversification was a result of economic, social and political conditions, which affected the possibilities of stimulating the processes of economic growth. Economic crisis, originating in the US, influenced considebrably also other countries connected with the US, including EU countries. This situation created adverse conditions for corporations growth. More favourable conditions for headquarters' location came into being in developing countries, which – thanks to capital and financial resources growth, better quality of infrastructural development, an improvement in intellectual and human resources, and implementing legal instruments – created, better than in European countries, conditions for economic growth. This applies also to countries rich in raw materials (Zioło 2011). It is probably these countries that some TNCs transferred their headquarters to.

Undoubtedly, the perfect conditions for TNC headquarters location are in big cities (metropolies), which are characterised by (Wdowicka 2003, 2005, 2008):

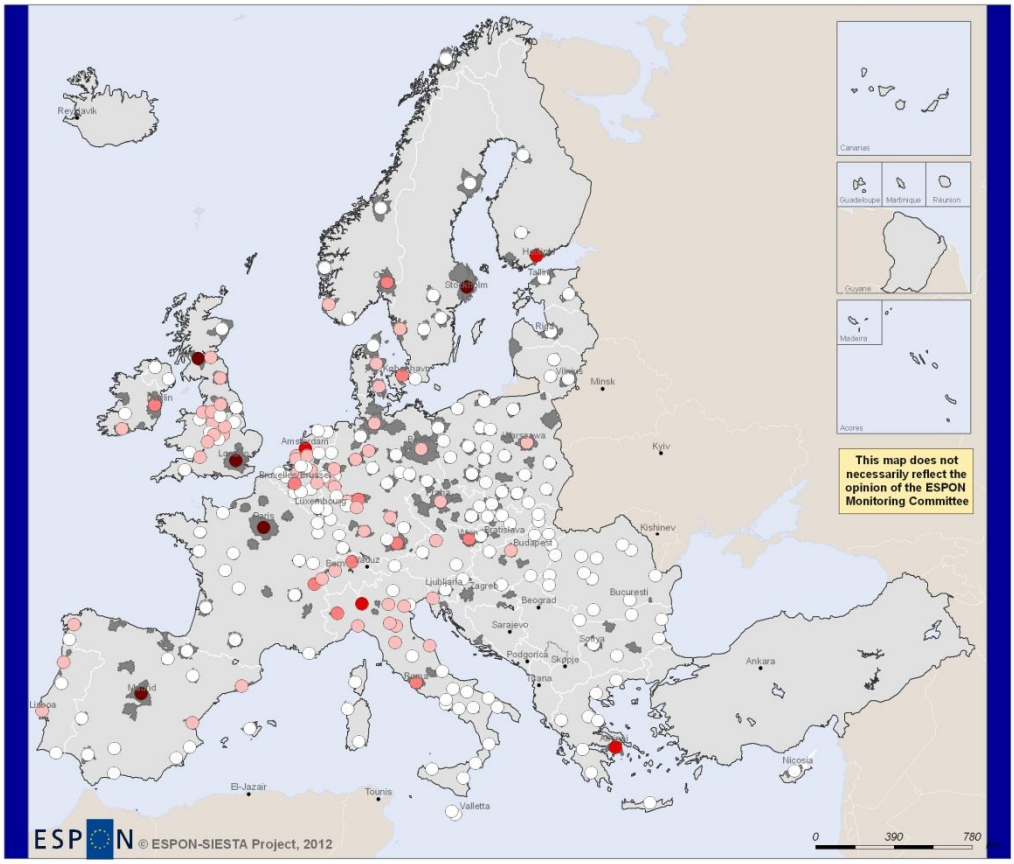
- high-level of economic development,
- diversified economy structure,
- access to human and social resources manifested by high level of education, ability to cooperate and innovate,
- modern infrastructure,
- ready market,
- dynamically developing real estate market,

- access to scientific and research potential, business-related institutions, manufacturing and service companies of competitive production potential to provide information services, and management and administrative institutions.

It is even assumed, that the presence of institutions representing management structures of international transnational corporations constitutes one of the essential metropolitan functions (Parysek 2005, Wdowicka 2009). It is confirmed by the results of the carried out analysis. There is a strong relationship between the size and the importance of a given LUZ and the number of TNCs headquarters located there. It seems therefore that the best way for cities to increase their importance on a global arena, represented by i.e. the number of TNCs headquarters located there, is to develop metropolitan functions.

Map 7

Number of Headquarters of Transnational firms in the 2000 biggest world firms whose headquarters is in the LUZ



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Regional level: LUZ
Source: EUROSTAT
Origin of data: EUROSTAT, URBAN AUDIT, 2012
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Number

- more than 15
- 11-15
- 6-10
- 1-5
- 0

2.8. Green technology patent applications to the EPO, 2008

The term *green patent* refers to patents for an *environmental* technology intended to be a reflection of the public consensus on the utility of certain technological approaches in reducing environmental impacts, as compared to available alternatives. Hence, by definition, the notion of which technologies are considered 'environmental' evolves over time (OECD, 2012). Generally, there are two categories of environmental technologies: (1) GENERAL ENVIRONMENTAL MANAGEMENT technologies, aimed at: air pollution abatement (from stationary sources), water pollution abatement, waste management (solid waste collection, material recycling, fertilizers from waste, incineration and energy recovery, landfilling and not elsewhere classified), soil remediation and environmental monitoring and (2) ENERGY GENERATION FROM RENEWABLE AND NON-FOSSIL SOURCES, including: renewable energy generation (wind energy, solar thermal energy, solar photovoltaic [PV], energy, solar thermal-PV hybrids, geothermal energy, marine energy [excluding tidal], hydro energy) and energy generation from fuels of non-fossil origin (biofuels and fuel from waste [e.g. methane]; OECD, 2012).

This map shows the percentage of green technology in the total number of applications to the EPO by European region in 2008. The European Patent Office, abbreviated EPO, is the executive body of the European Patent Organisation, set up pursuant to the Convention on the Grant of European Patents. EPO examines applications for European patents and grants them. By doing so, it protects intellectual property rights and provides a link between innovation, inventions and the marketplace. Applying for a patent makes an invention public, but at the same time gives it protection. A count of patents is one measure of a country's or region's inventive activity and also shows its capacity to exploit knowledge and translate it into potential economic gains. In this context, indicators based on patent statistics are widely used to assess the inventive and innovative performance of a country/region (EUROSTAT, 2012). However, the share of green technology in the total number of applications to the EPO does not directly represent the level of innovation of a country or region; what it does is show is the place of green technologies among all innovation-oriented initiatives.

MS	*Region*	*% of green technology patent application*
HU312	Heves	100.00
PL122	Ostrołęcko-siedlecki	100.00
PT181	Alentejo Litoral	100.00
PT183	Alentejo Central	100.00
RO223	Constanţa County	100.00
TR323	Mugla Province	100.00
TR413	Bilecik Province	100.00
UKM65	Orkney Islands	100.00
ITE1A	Grosseto	92.31
DE809	Güstrow	90.91

Table 18 The regions with the highest green technology patent applications to EPO in 2008 (% of green technology patent application)

MS	*Region*	*% of green technology patent application*
UKM50	Aberdeen and Aberdeenshire	2.63
PL127	Warszawa	2.63
FR107	Val-de-Marne	2.62
FR414	Vosges	2.61
UKI12	East and North East Outer London	2.59
DE121	Baden-Baden, Stadtkreis	2.55
DEA22	Bonn, Kreisfreie Stadt	2.52
DE135	Rottweil	2.51
DEA41	Bielefeld, Kreisfreie Stadt	2.49

Table 19 The regions with average GDP green technology patent applications to EPO in 2008 (% of green technology patent application; median = 2.59%)

MS	*Region*	*% of green technology patent application*
DEA27	Rhein-Erft-Kreis	6.64
DE27B	Ostallgäu	6.59
IE022	Mid-East Region, Ireland	6.55
DEB3E	Germersheim	6.53
NO034	Telemark	6.51
DE212	München, Kreisfreie Stadt	6.51
BE33	Liège	6.48
DE714	Wiesbaden, Kreisfreie Stadt	6.48
FR511	Loire-Atlantique	6.48

Table 20 The regions with average green technology patent applications to EPO in 2008 (% of green technology patent application; mean = 6.52%)

The analysis of the examined European regions shows a great diversity as far as the share of green technology in the total number of applications to the EPO is concerned: from no green patent applications in a given year in some regions to 100% of applications concerning green technologies in others. The largest share of green technology patent applications in total patent applications (100%) was recorded for eight examined regions, including two in Portugal (Alentejo Litoral and Alentejo Central) and Turkey (Mugla Province and Bilecik Province), and one in Hungary (Heves), Poland (Ostrołęcko-Siedlecki County), Romania (Constanţa County) and the United Kingdom (Orkney Islands). Two other regions display a very high share of green patents (over 90%): Grosseto in Italy and Güstrow in Germany. The difference between the above regions and those ranking lower is quite significant and amounts 20%, which makes the ten listed regions unquestionable leaders of the classification. It should be noted, however, that the study has a specific nature and, as already mentioned, the share of green technology in the total number of patent applications to the EPO does not reflect the level of innovativeness of the regions. To illustrate this, the maximal score (100%) may be awarded to a region from which only one patent application was made in the given year, with the patent supposed to protect a green technology. An innovative region, from which patent applications were filed for inventions from various areas, may fail to achieve a high score for a particular criterion. This seems to be the case in this study. Regions with a

large share of green technology in total patent applications do not happen to be the leaders when it comes to the absolute number of green patent applications filed (regions that display the most innovative activity in this area are most of all located in Germany, northern Italy, southern France, and the Benelux countries) or the proportion of the number of applications per inhabitant (the leaders here are regions from Central Europe, most of all from Germany).

In 2008, as much as 430 examined regions (about 35% of the pool) made no green patent whatsoever. This is reflected in the study's median, or the middle value, amounting only 2.59%. This figure shows that there are as many regions for which the share of green technology in total patent applications to the EPO is higher than 2.59% as there are regions with a share lower than 2.59%. A share equal to the median was recorded for the British region of East and North East Outer London. Shares slightly higher than the median were found in the following regions: Aberdeen and Aberdeenshire (the United Kingdom), Warsaw (Poland), as well as Val-de-Marne and Vosges (France). The following regions, among others, ranked slightly below the median: Baden-Baden (Stadtkreis), Bonn (Kreisfreie Stadt), Rottweil and Bielefeld (Kreisfreie Stadt).

The arithmetic average for the set of the examined regions is slightly higher and amounts 6.29%. A score similar to the average share of green technology in total patent applications to the EPO was found for the German regions of Germersheim and Munich (Kreisfreie Stadt) and the Norwegian Telemark. The fact that the average is higher than the median reflects a relatively low activity when it comes to looking for innovative solutions contributing to broadly conceived environmental protection, measured in the share of green technology in total patent applications to the EPO.

Looking for new innovative green technologies, particularly ones aimed at more effective resource consumption, is the guiding idea behind the strategy Europe 2020 (KOM 2011). Activity in this area appears to be essential, as natural resources are not only the foundation of both European and global economy, but also have a great effect on our living standard. Natural resources include both fuel, minerals, and metals on the one hand, and food, soil, water, air, biomass, or ecosystems on the other. It should be noted that demand for natural resources is growing and, as forecast, will continue to grow. If the current trends are maintained, the world's population will increase by 30% by 2050 to about 9 billion and developing economies will pursue the same level of wealth and consumption for their citizens as enjoyed by the developed world. In the last decades, this growth has put much pressure on the natural

environment across the globe, intensified the consumption of the world's natural resources, and reduced the security of the supply of resources.

The root of the problem was the adoption in the economy of the principles of Neoclassical economics, which treated natural resources as free goods whose supply greatly exceeded the demand, so it was supposedly not necessary to manage their consumption. It was believed that the market mechanisms had self-regulatory properties that could counteract anti-growth decisions, resulting in pollution, made on the microeconomic level (Poskrobko T.). This approach proved wrong, however, as it led to the degradation of the environment and to increased environmental risk, so that this model of resource management became non-viable. To secure future economic growth and employment in Europe, a new growth model should be adopted, based on increasing efficient resource consumption (KOM 2011).

One model of social and economic development suitable for the needs of the world today is undoubtedly the sustainable development model, presented in 1987 in the report Our Common Future, also known as the Brudtland Report. The document stresses the need for continued development, and even continued economic growth, but in a way that will accept certain limits imposed on the economy for the benefit of nature. These limits are not treated as absolute "but limitations imposed by the present state of technology and social organization on environmental resources and by the ability of the biosphere to absorb the effects of human activities" (WCED, 1987). There is no doubt, then, that innovativeness of the economy (including in particular cutting-edge technologies) is one of the instruments for implementing the principles of sustainable development, even if used not fully consciously as such. It should be noted, however, that not all cutting-edge technologies, even the most advanced, serve the purposes of sustainable development (e.g. technologies increasing production effectiveness). Technologies that contribute to this model are only ones that (according to Mishan 1986 and Mierzejewska 2007, 2009): (1) lead to lower energy and material consumption in the economy, (2) reduce the external effects of the economy (externalities), (3) serve society in a general sense, and at the same time (4) ensure security. Generally, it is all about technologies that reduce the pace at which resources are depleted and changes with negative environmental effects caused by economic activity (see also Schmidt-Bleak 1990, Papayanakis 1991, Parysek 1993).

Sustainable development and the role it attributes to new, green technologies lie at the heart of the EU2020 strategy. The guiding initiative concerning the effective use of resources is one of the seven initiatives developed for the purposes of the strategy for smart and sustainable

development promoting social inclusion (inclusive growth). The strategy stresses the necessity to develop new products and services, look for new ways of reducing expenditure, minimise waste, improve resource supply management, change consumption models, optimise manufacturing processes, find new methods of managing and conducting economic activity, and methods of improving logistics operations. It is expected that such initiatives will at the same time create ample opportunities for economic growth, improve productiveness, reduce costs, and thereby contribute to increased competitiveness. This in turn will help stimulate technological innovation, create jobs in a fast-growing green technology sector, and increase the role of trade in the EU (e.g. by opening up new opportunities of export). Additionally, consumers will benefit thanks to a wider offer of "sustainable products" (KOM 2011).

However, building a Europe that efficiently uses resources through technological improvements also requires proper organisational and institutional actions to aid innovative activity and the promotion of export. An example of good practice in this field can be found in Germany. Germany is one of the most innovative nations in the European Union, and among the most frequently patented solutions developed there are those concerning environmental technologies (approximately 25% of applications). The innovativeness of this sector results in greater competitiveness of the German renewable energy market and additionally increases exports (approximately 20% of environmental solutions are exported) (IEO 2010). The high level of export enjoyed by German businesses is the effect of the support they get from various institutions (such as the Federal Foreign Office with its agencies in various countries, Germany Trade and Invest GmbH, or German International Chambers of Commerce). Another support mechanism for German enterprises is run by the Federal Ministry of Economics and Technology. A system of credit warranties for manufacturers protects them from market fluctuations and the changing political situation in the country. German technology also enjoys the support of the High-Tech Strategy, based mainly on strengthening the links between science and business and creating proper conditions for research. Finally, there are various types of programmes, most importantly ones that help enterprises of different sizes (including small and medium-sized enterprises) to start, conduct and promote innovative activity, based on various types of subsidies or loans (including preferential loans), but also programmes helping businesses and research centres cooperate in quickly introducing an innovative product to the market and in commercialising it (IEO 2010).

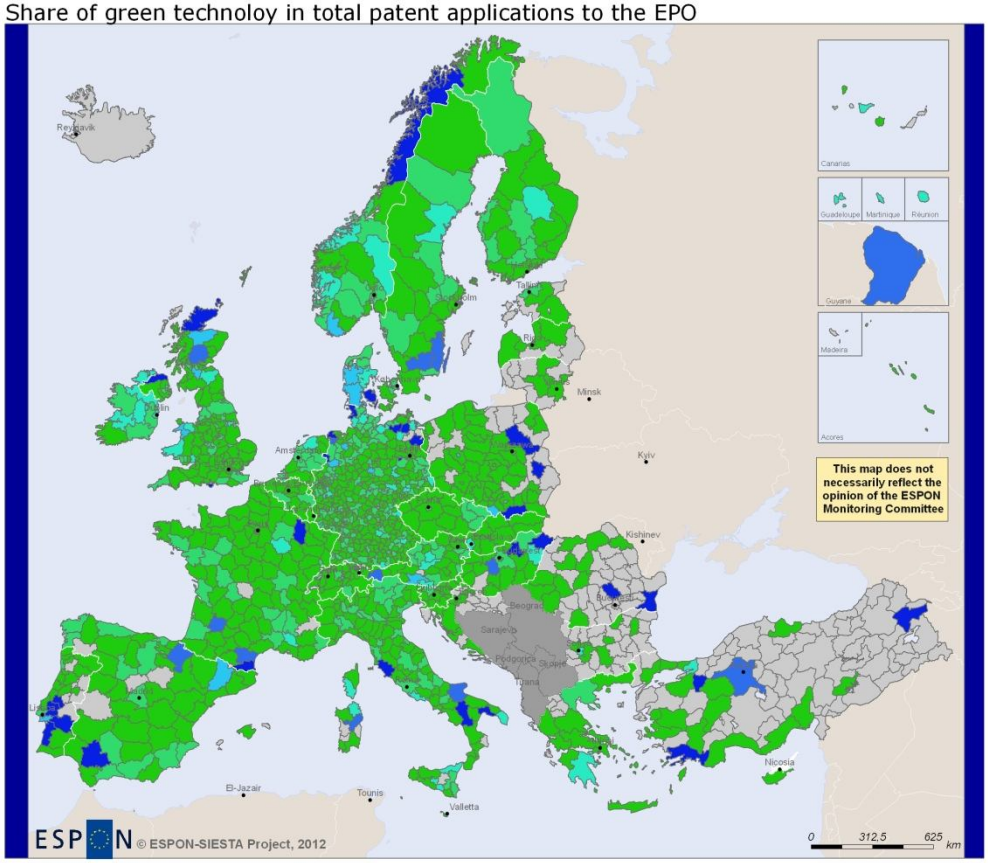
Developing and promoting new green technologies is no easy (or cheap) feat. This is why increasing the innovativeness of states and regions is the

outcome of a wide variety of factors, most of all of the institutional solutions adopted on the national level. The support offered by the state in the form of green technology funding programmes and help in the promotion of environmental technologies seem to be the main reasons why regions succeed in being innovative. This is why the most innovative regions are those with well-developed economies. It should all the more be noted as a positive development that in the eastern part of the examined geographical area, with a slightly lower level of economic development (Poland, Turkey, Romania, or Hungary), innovativeness is in many regions focused on the development of green technologies.

Map 8

Green technology patent applications to the EPO, 2008

Share of green technoloy in total patent applications to the EPO



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Regional level: NUTS 2 and 3
Source: EUROSTAT and OECD Regpat database
Origin of data: EUROSTAT and OECD Regpat database
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% of green technology patent application

- < 5,0
- 5,1 - 15,0
- 15,1 - 25,0
- 25,1 - 30,0
- 30,1 - 35,0
- > 35
- 0 patent aplications in 2008
- NO DATA

NOTES:

NL and EL are shown at NUTS 2 level. IS is shown at country level.
This indicator is the share of green tech patents over total patents applications to the EPO by inventors country of residence.
Patens considered as green technologies were the number of patent applications to the EPO bering a standard IPC (International Patent Classifications) in the following categories preselected by the OECD: General Environmetal management and Energy generation from renewable and non fosil sources.

2.9. General government gross debt (Maastricht debt), 2011

This map presents government debt in 2011 as measured according to the Maastricht criterion, officially referred to as a definition under the excessive deficit procedure. The Maastricht criterion stipulates that the debt-to-GDP ratio in both Member States and candidate countries cannot exceed 60% and the deficit-to-GDP ratio can be no higher than 3%. A deficit in excess of this value is permitted if it shows a substantial decline and approaches the required threshold at a satisfactory pace. It means that in the event of exceeding the 60% GDP threshold the government is obliged to balance revenues and public spending in a timely fashion. Detailed provisions regarding this issue are contained in the Protocol on the excessive deficit annexed to the Maastricht Treaty. The data published by EUROSTAT for the EU countries is measured using this method only.

The above mentioned Protocol defines government debt as the debt of the whole general government sector: gross, consolidated and nominal value (face value). It excludes other accounts payable, as well as insurance technical reserve, if any. Using the ESA95 definitions, the Maastricht debt is divided into the following categories: (1) currency and deposits, (2) securities other than shares, excluding financial derivatives and (3) loans (EUROSTAT 2010).

A high level of government gross debt is an indicator of a poor financial condition of a given country and is usually considered a threat to its economic and social development. The Maastricht criterion stipulates that exceeding the established debt ceiling should force the Member State concerned to take certain measures aimed at correcting the deficit and improving its overall financial situation, thus ensuring a stable socio-economic growth of the country itself and of the entire EU. The size of government debt measured as a percentage of GDP has been under scrutiny over a couple of years of the deep global economic crisis being in full swing. The analysis allows for comparing the performance of the Member States and identifying those countries failing in the struggle against the crisis, and requiring appropriate actions to be taken to sustain their development in compliance with the EU20202S.

MS	*Country*	*Government debt (% of GDP)*
EE	Estonia	5.80
BG	Bulgaria	16.50
LU	Luxemburg	18.20
RO	Romania	31.20
SE	Sweden	36.50
LT	Lithuania	37.50
CZ	Czech Republic	41.00
DK	Denmark	43.70
LV	Latvia	43.70
SK	Slovakia	44.60

Table 21 The countries with the lowest government gross dept (Maastricht debt) in 2011

MS	*Country*	*Government debt (% of GDP)*
GR	Greece	165.80
IT	Italy	120.70
IE	Ireland	104.60
PT	Portugal	100.90
BE	Belgium	97.30
FR	France	85.90
UK	United Kingdom	84.30
DE	Germany	80.90
HU	Hungary	73.40
AT	Austria	72.20

Table 22 The countries with the highest government gross dept (Maastricht debt) in 2011

MS	*Country*	*Government debt (% of GDP)*
SI	Slovenia	45.50
FI	Finland	48.70
PL	Poland	56.70
NL	**Netherlands**	**65.00**
CY	Cyprus	65.80
ES	Spain	68.30
MT	Malta	69.40

Table 23 The countries with average government gross dept (Maastricht debt) in 2011 (median = 65.00%)

In 2012 the level of government debt varied from 5% to as much as 165,80% of GDP across the EU countries. It can be assumed that the countries in the south and west of the EU recorded a higher level of government debt than the countries in the north and east, including the newly joined ones. Estonia is the least debt-laden EU country, with Maastricht debt at 5,8% of GDP. It is simultaneously the sole Member State whose level of government debt is below 10% of GDP. In 2011 Estonia was followed by Bulgaria and Luxembourg with government debt ratios lower than 20% of GDP, and Romania, Sweden and Lithuania with the figures below 40% of GDP (tab. 21). The highest level of debt to GDP was recorded in Greece at over 165% of GDP (tab. 22). The state of Greece's public finances is the worst in the EU. Slightly better off are Italy with 120,7% of GDP, Ireland (104,6% of GDP) and Portugal (100,9% of GDP). In the rest of the EU the level of government debt was lower than GDP, but it in Belgium, France, the United Kingdom and Germany it remained very high, standing above 80% of GDP. What makes the situation all the more alarming is that the highest debt to GDP ratio is recorded in highly economically developed countries, mostly the Eurozone members.

In the group of countries under discussion the median, describing the middle value in a sorted list of numbers, preceded and followed by an equal number of observations, amounted to 65% of GDP, and approximated the average value of nearly 64% of GDP. The average size of government debt to GDP was recorded in the Netherlands. Poland, Finland and Slovenia fell slightly below the average, whereas Cyprus, Malta and Spain – slightly above (tab. 23) it. It can be inferred from the median that the threshold value set out in the Protocol defining excessive deficit procedures was exceeded in over half of the EU Members, in 14

countries precisely. The analysis leads to two main conclusions: (1) most of the Member States do not comply with the provisions of the Protocol, (2) high level of the government debt as measured according to the Maastricht criterion (simplified method) may suggest that its actual level (evaluated according to ESA 1995 guidelines) may be even worse. Not one but two government debt assessment methods are being applied in the EU.

International comparable analyses of the economy call for a common statistical methodology. The legal bases of government debt in the EU are stipulated in the following legal acts: (1) the Maastricht Treaty along with above mentioned Protocol on the excessive deficit procedure and the Regulation on the excessive deficit procedure, annexed to the Maastricht Treaty, (2) the European System of National and Regional Accounts (ESA 1995) describing in detail the division of the general sector government into three subsectors, as well as the subsector and financial liability qualification criteria. Both these legal acts give rise to differences in the assessment of government debt. These differences regard mainly the debt scope. The Maastricht debt is narrower in scope, because it excludes financial derivatives, accounts payable, shares and other equity as well as insurance technical reserves, in that mutual fund provisions; it also requires nominal (face) valuation instead of market valuation. It is a simplified method compared with the standards set out in ESA 95 (Annual Report 2004 – Government debt, Mink, 2004, Polarczyk 2005). According to the Protocol, government debt is assessed under the excessive deficit procedure based on gross debt, which is why its value can be lower than the value of debt measured according to ESA 95 method (Polarczyk 2005). The subject matter scope remains the same in both acts. Government debt entities are public sector units, categorized based on relatively unambiguous assignment criteria (Polarczyk 2005). According to the EU regulations, in the field of public finance sector every Member State is obliged to respect in its national accounts definitions contained in ESA 95 and to report data to international organizations for comparison purposes with non-EU countries (these data form a basis for assessing government debt). When it comes to deficit and government debt, the definitions meeting the Maastricht criteria must be complied with, which provides no basis for comparison with non-EU countries (Polarczyk 2005).

There is no compelling argument for applying two different assessment methods and publishing two different government debt ratios for the EU Member States. On the contrary; it creates the impression that measuring government debt poses a greater challenge for EU Member States, ranked as one of the most developed countries in the world, than for non-EU countries. Excluding accounts payable, whose value can’t be ignored, from

the Maastricht debt is especially inexplicable (Polarczyk 2005). Treating them as a hidden debt leaves room for manipulation and abuse. The idea behind restricting the subject matter scope of the Maastricht debt compared with the ESA 95 was to facilitate reporting under the Maastricht fiscal standards. However, it leads to a confusion in international statistics and allows for a part of the actual government debt to be hidden (Polarczyk 2005).

When comparing the government debt across countries, a number of country-specific features must be taken into account, among others: differences in development and economic stability and debt service capabilities. Financial liabilities are not merely a result of revenues being not sufficient enough to match public spending incurred by those entities. If public spending did not exceed revenues, their budgets would be balanced and there would be no need for incurring liabilities, whose cost is a burden on future revenues (Kozioł 2010).

The main contributor to an increased government debt is budget deficit, occurring when government revenues fall short of government spending in a given budget year. The reasons behind the phenomenon may be manifold. It is usually due to (Ostaszewski 2010, Kozioł 2010): (1) changing economic conditions resulting in a decline in public revenues, to which public spending cannot be matched promptly, (2) structural factors which reduce tax efficiency and simultaneously increase social needs, (3) political decisions arising from the concept of accelerating and stabilizing growth, (4) political decisions involving assuming new financial responsibilities or lightening tax burdens while retaining the workload of public authorities and (5) a sudden rise in spending or fall in revenues (or both) caused by short-term factors beyond human control.

The imbalance between the state's revenues and spending and the subsequent rise in government debt is a matter of dispute among economists. Some of them believe that the country's major economic objective is to ensure economic growth. This end justifies in their opinion the involvement of public finance in sustaining a positive economic trend, and a temporary increase in the budget deficit. It brings down unemployment and presents an opportunity for higher revenues in the long run. Guided by this principle, many governments of the EU Member States increased their budget expenditures and reduced tax burdens with a view to overcoming the crisis. The United Kingdom, Germany or France consciously drove up budget deficit and, consequently, government debt, all for the sake of economic growth. The supporters of keeping budget in balance point to adverse effects of the deficit and government debt being on the increase - such as growing inflation, the risk of falling into a debt

spiral, a contribution to an increase in interest rates and debt service costs (Kozioł 2010).

The results of analysis reflect the current situation of the EU27 in terms of government debt level, but do not explain why most of highly developed European countries exceeded the critical level of government debt defined in the Protocol annexed to the Maastricht Treaty, which must have been accepted on entry into the Community. The answer to this question is contained in the regulations and procedures applicable in the EU.

For a period of time the Maastricht Treaty, which came into force in 1993, defined the ratios and rules (5 conditions in total) every candidate country had to observe to be able to join the Economic and Monetary Union and the common currency zone – without imposing any restrictions on the EU Member States. The situation changed in 1997 when the Stability and Growth Pact was ratified at the Amsterdam Summit. It was assumed in the document that the Maastricht fiscal criteria (government debt below 60% of GDP and budget deficit below 3% of GDP) were not only a condition for new countries joining the EU, but would also bind the current Members of the Monetary Union. For Economic and Monetary Union to operate smoothly Member States must avoid excessive budgetary deficit. The Pact obliges the Economic and Monetary Union Members to maintain budget balance over a medium term covering a full business cycle. All the EU states are required to report and update their macroeconomic programs (economic stability and convergence programs), based on which the European Commission and the Economic and Financial Committee will assess their economic situation. It is aimed at ensuring a stable and good condition of public finances in order to secure a high and sustained economic growth. The Pact rules were also intended to prevent the loosening of the fiscal policy in times of prosperity, when the risk of using rising tax revenues for the purpose of increasing government spending becomes more prominent. In practice it means that the governments should not exceed the deficit ceiling (set at 3% of GDP) and aim at generating budget surplus during the economic boom period. This criterion was given special emphasis, because the second fiscal criterion, namely the government debt-to-GDP ratio (60% of GBP at a maximum) was very high in some countries during the ratification process, and it would be impossible to comply with the threshold value. According to the provisions of the Pact, the countries failing to abide by the ceiling set for budgetary deficit and violating the fiscal discipline may face a penalty unless they suffer a deep recession. The excessive deficit procedure is not launched if the government- and self-government sector deficit in excess of 3% of GDP is considered temporary and exceptional, and remains close to the threshold (http://ec.europa.eu/).

The requirements of the Pact were not observed in practice, but their violations by the Member States carried no penalties as stipulated in the Pact. This was in response to pressure from France, Greece or Germany. What is more, the criteria set out in the Pact are not automatic, but are a consequence of the political decision made by Ecofin. After the fiscal discipline has been blatantly violated by France and Germany in 2005, the criteria were made even less stringent (Bagus 2010).

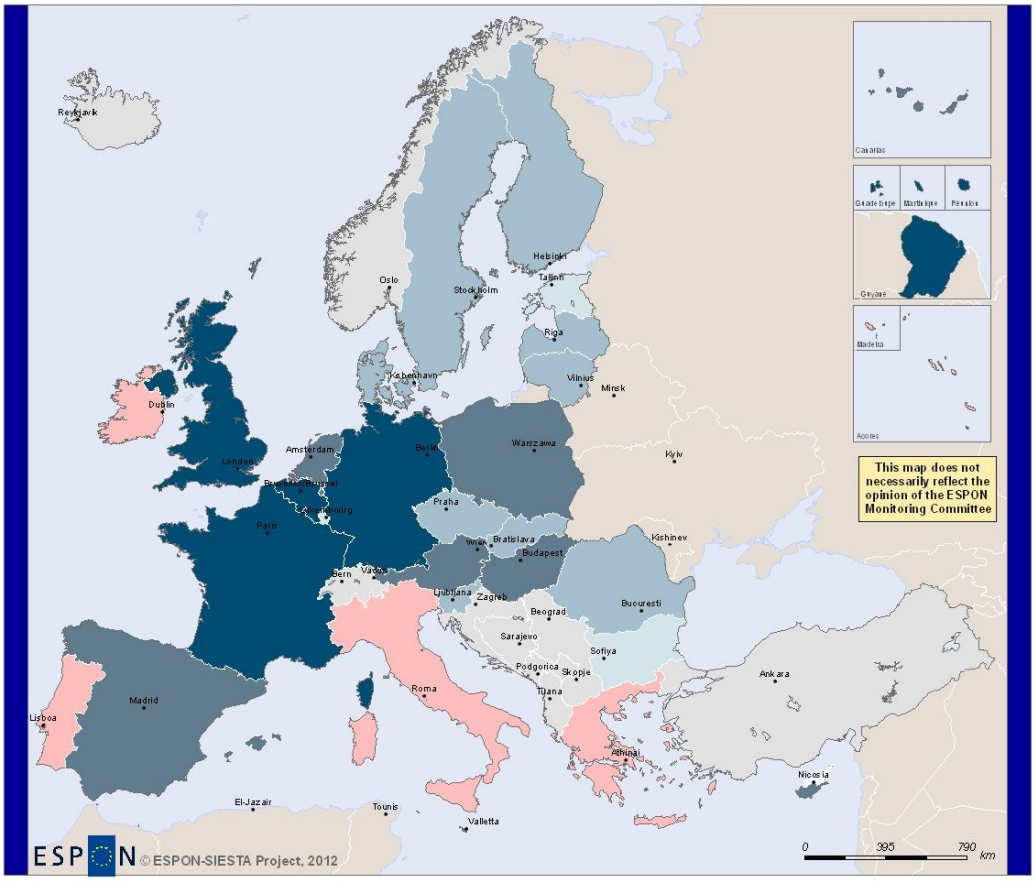
The package of six acts (the so called six-pack) strengthening the EU Stability and Growth Pact were passed by the European Parliament at the end of 2011, when the crisis was in full swing. The Package was a response to an evident crisis in government debt, which triggered Greece, Ireland and Portugal to turn to the EU and the IMF for help. It proved that the EU framework for keeping national finances in discipline failed to deliver and did not prevent the crisis from spreading even to large EU economies. Disciplinary measures put in place so far have turned out to be ineffective; on top of that addressed only excessive deficit. No instrument was implemented that would allow for responding to the increasing government debt of the EU Member States. It is the amounting debt of the Euroland members that is the major factor behind the decline in the value of their treasury bonds and a general instability of financial markets. It is expected that the adoption of the package will restore the confidence of financial markets in the stability of public finances in the Euroland economies (Gadomski 2012).

Many would agree with the opinion that budget balance can't be treated as a mandatory and key criterion when evaluating the fiscal and economic policy of a country. (Owsiak 2006). In this context a rigid legal framework will be never fit for the changing social and economic reality. It must be remembered that creating a deficit and government debt as its consequence requires a great deal of prudence, and that the deficit amount should be well grounded in reality, justified by social economic benefits and in consideration of the future burden for the budget (Kozioł 2010). It is of utmost importance in a situation where sustainable growth, central to the concept of intergenerational equity, is one of the pillars of EU2020S.

Map 9

General government gross debt (Maastricht debt), 2011

in % of GDP



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Regional level: NUTS 0
Source: Eurostat
Origin of data: Eurostat, 2012
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% of GDP

- < 25
- 25 - 50
- 50 - 75
- 75 - 100
- > 100
- No data

2.10. General government gross debt change in the years of the crisis, 2007-2011

According to the definition included in the European System of Accounts (ESA 95), government debt is defined as the total consolidated gross debt at nominal value in the following categories of government liabilities: currency and deposits, securities other than shares excluding financial derivatives, and loans (EUROSTAT 2010). Public debt is then the sum of government liabilities, mainly related to incurred loans, obtained credit, cash-based securities or accepted deposits to cover public (finance) deficit. The upper levels of deficit and public debt for EU member states was specified in the Protocol on the excessive deficit procedure annexed to the Maastricht Treaty, in both cases it is related to a state's GDP. The protocol defines the principles for calculating deficit and public debt to check if the member states adhere to the public finance deficit limit (3%) and the public debt limit (60% of GDP). The principles for calculating public debt provided for in the Protocol, known as the Maastricht criterion, that since 1997 have bound not only candidates, but also member states, differ slightly from those used in ESA 95. While the entities concerned remains the same (the government sector), the scope of regulation (liabilities included in government debt) is a bit different: more narrow in Maastricht debt (Polarczyk 2005). However, figures for EU states published by EUROSTAT are based solely on the Maastricht criterion.

This map presents changes in public debt in relations to GDP in EU states in 2007-2011, the years of the crisis. The changes are expressed as public debt growth (in %) in a country, compared to 2007. The issue is of major significance – as public debt grows, so do the costs of its service, i.e. the interest paid to investors who previously funded the budget deficit by buying treasury bills and bonds, or providing credit, which reduces the potential for economic growth. How high the costs of debt service are depends on the amount of the debt itself and on the interest rates offered by the government to investors buying securities. Public debt service is a great burden to public finance (in some countries it swallowed up 25% of all public sector expenditure). If a government refuses to cover debt service liabilities and pay the principal instalments, the state goes bankrupt. In reality, this is rarely the case, but is possible. When it does happen, it always involves a great deal of trouble for the country and a grave financial crisis. The bankruptcy of a Eurozone country would mean serious financial trouble for the whole club, but in a wider perspective for the entire EU.

MS	*Country*	*Percentage change (%)*
SE	Sweden	-9.20
BG	Bulgaria	-4.07
HU	Hungary	9.55
MT	Malta	11.40
CY	Cyprus	11.90
BE	Belgium	15.70
IT	Italy	17.07
AT	Austria	19.93
DE	Germany	24.08
PL	Poland	26.00

Table 24 The countries with the lowest government gross dept growth in 2007 – 2011 (%)

MS	*Country*	*Percentage change (%)*
LV	Latvia	385.56
IE	Ireland	321.77
LU	Luxemburg	171.64
RO	Romania	143.75
LT	Lithuania	123.21
SI	Slovenia	96.97
UK	United Kingdom	89.86
ES	Spain	88.67
DK	Denmark	58.91
EE	Estonia	56.76

Table 25 The countries with the highest government gross dept growth in 2007 – 2011 (%)

MS	*Country*	*Government debt (% of GDP)*
FR	France	33.80
FI	Finland	38.35
NL	Netherlands	43.49
CZ	Czech Republic	46.95
PT	Portugal	47.73
SK	Slovakia	50.68
GR	Greece	54.38

Table 26 The countries with average government gross dept growth in 2007 – 2011 (in %) (median = 46.95%)

The public debt situation in 2007-2011, the years of the economic crisis, varied greatly from one EU member state to another. There were some whose public debt measured as a percentage of GDP went down, some with a minor public debt growth and some with very dynamic public debt growth. The first group includes sadly only two countries: Sweden, which reduced its public debt in relation to its GDP by almost 10% and Bulgaria, with slightly over 4% of public debt reduction.

All other EU27 states recorded a more or less significant debt increase. Apart from Sweden and Bulgaria, the lowest increase was found in Hungary, Malta, Cyprus, Belgium, Italy, Austria, Germany and Poland (tab. 24). The absolute level of public debt in 2011 varied greatly from one country in this group to another. For example, Sweden and Bulgaria had relatively little debt, while Italy, Germany, Hungary or Austria rank relatively high in terms of being in the red, with their public debt well over the Maastricht limit.

In 2007-2011 public debt grew very fast in Latvia and Ireland (over 300%), but also in Luxembourg, Romania, or Lithuania (over 100%). A relatively fast pace of public debt growth was observed in Slovenia, the United Kingdom, Spain, Denmark, and Estonia (tab. 25). Also this group includes countries whose debt level in 2011 was small (e.g. Estonia, with the lowest public debt among the EU27 states) and ones much in the high (e.g. Ireland).

The conclusion may be that public debt growth does not depend on the level of a country's public debt, even if it is greater in countries with a low level of debt, which has a mathematical explanation.

The average 2007-2011 debt increase in the EU was as high as 74.14%, with the debt of eight EU27 states growing faster than the average and

the debt of the other nineteen – slower. This proves that the high average is to a large extent an effect of a very dynamic debt growth in just a few EU countries. Another argument in favour of this conclusion is that the median (the middle value) is much lower than the average (46.95%). Public debt growth similar to the median was recorded for the Czech Republic, the Netherlands, Finland, and France, where it was slightly below the median, and in Portugal, Slovenia, and Greece, where debt increase slightly exceeded it (tab. 26).

When analysing the geography of public debt in the years of the crisis, no real regularities can be found. Public debt growth affected to the same extent eastern (e.g. Lithuania, Latvia, or Romania) and western EU member states (e.g. Ireland, the United Kingdom, Spain), the "old" EU15 states (e.g. the United Kingdom) and EU newcomers (e.g. Romania), Eurozone countries (e.g. Ireland, Spain) and non-Eurozone ones (e.g. Lithuania, Latvia, Romania).

The most precarious public debt situation seems to have affected those countries whose government liabilities had been high and grew fast in 2007-2011, as it was the case in Ireland or the United Kingdom. The position of Spain, Portugal, or Greece was slightly better, but in reality the countries have turned out to be on the brink of bankruptcy. Although some Central and Eastern European states (such as Lithuania, Latvia, or Romania) recorded a fast increase of public debt, but their level of debt was relatively low, so the increase should not pose a major threat to their public finance stability.

The potential causes of public debt growth are many. A situation in which public debt grows because of spending aimed at spurring the economy is usually acceptable. It is seriously objectionable, however, if it is an effect of consumption in excess of what the state can actually afford (Kozioł 2010).

There were several factors that contributed to the poor condition of public finance among the EU states. One of the most important is certainly the financial crisis that engulfed many economies across the globe starting from 2007. Counteracting the effects of the crisis and stimulating business activity involves public spending, which sadly results in increasing public debt (Kozioł 2010).

The global economic crisis, which started in September 2007, initiated a crisis in the finance and banking sectors, linked to the sub-prime mortgage lending disaster in the United States. The declaration of bankruptcy of Lehman Brothers, one of the world's biggest and most renowned banks, virtually paralysed the interbank market and damaged the mutual trust between the participants in the financial market (Socha,

Orłowski 2010). It also lead to panic on stock exchanges; more difficult access to lending; higher borrowing costs for enterprises; reduced real property prices; faltered activity in the construction sector, the more severe the stronger the earlier housing construction boom; and increased unemployment, which further affected consumer moods (Orłowski, Pasternak, Flacht, Szubert, 2010, Światowy kryzys gospodarczy…, 2011).

The first European victim of the crisis was Iceland, with its strong financial connections with institutions in the USA. Next, problems befell countries financially linked to Iceland: the United Kingdom and the Netherlands, then Ireland or Spain, which earned substantial profits from the development of their housing markets, and other countries across Europe and the world (Bartkowiak 2010). In consequence of a deepening crisis, two countries, Greece and Ireland, could not pay their liabilities and cover their huge budget deficits at a reasonable cost (Światowy kryzys…, 2011). At the same time, Spain and Portugal, which fell victim to the domino effect brought about by Greece's budgetary crisis, managed to individually finance their needs by issuing treasury securities. Still, the struggle for trust and liquidity, and consequently for Eurozone stability, in these countries continues (Światowy kryzys…, 2011). It seems to be of key importance for counteracting the effects of the crisis to rebuild consumer optimism, which, however, may prove to be no easy fit.

For the European Commission, a rational response to the crisis and a way to spur growth in Europe were government investments. Their scale was not sufficient, though, to make up for the drop in corporate and household spending. Increased public spending resulted, in turn, in a significant increase of debt and interest paid on bonds (Pszczółkowska 2009). In consequence, 2010 saw the gross borrowing needs rate in comparison to the GDP of eight Eurozone countries exceed 20% (Światowy kryzys…, 2011).

One of the reasons of the fast pace of public debt growth in the EU may be the lack of adequate supervision by EU institutions over the adherence to the Maastricht Protocol. Only in 2011, the European Commission obliged the member states to report on the level of their debt and public deficit based on a unified calculation method, which was supposed to reduce the effect of a variety fiscal tricks used to conceal them. The package of six legislative acts (the so-called Six-Pack) adopted in November 2011, aimed at strengthening the EU's Stability and Growth Pact, provides for, among other things, more automatic sanctions for states breaching the Pact, a measure to keep a tight reign on public finance. The new legislation also empowers the EC to force governments to follow its recommendations on budget policy and to quickly counteract economic imbalance (Gadomski 2012).

Public debt is usually calculated in relation to GDP. Therefore, the rate of public debt growth can be reduced in two ways. One of them is to increase the pace of economic growth and thus increase state revenues, the other is to reduce spending. But to improve the condition of public finance in EU countries, it would take an annual average GDP growth of at least 7-10%, which seems anything but possible while in crisis. In this situation, one of the basic ways to reduce the growth of public debt may be a reform of public finance. The effect of such a reform should be most of all the following (Kozioł 2010): savings on fixed expenditure (social expenditure and public services, including possibly rising the retirement age, reducing retirement privileges, increasing pension contributions, etc.) and (2) increased public revenues (by strengthening tax discipline, including in particular by reducing the grey economy, introducing new public imposts, raising tax rates and taxing further types of economic activity).

However, the presented ways of reducing budget deficit, and consequently public debt, entail many social and economic effects that give rise to certain dilemmas. Undoubtedly, measures taken to reduce public debt by saving on social benefits may not only result in slower increase of social benefits, but also in an actual reduction, which would lead to social backlash (Kozioł 2010). However, if no such measures are taken, deficit and public dept may grow, with the state falling into a dept trap.

The global economic crisis came into being, as mentioned before, in the realm of finance. Therefore, it can be expected that the use of proper financial instruments in the conditions of market economy will help ameliorate its effects. According to Kozioł (2010), such instruments allow for stimulating economic growth, reduce the effects of temporary economic difficulties or prevent them from happening, allow for covering the costs involved in repairing the effects of acts of God or even, in exceptional situations, for meeting social needs that will otherwise escalate. Still, incurring debt must always be accompanied by a comprehensive analysis of whether or not it is reasonable as well as an account of the costs involved and the potential for debt service, as the costs are paid by society at large, although to a different extent. It also needs to be taken into account that public debt is an inter-generation issue. In line with the sustainable growth principle, the foundation of the EU 2020S strategy, we should ensure that future generations can satisfy their own needs. Having the future generations pay our debt is clearly a violation of this principle.

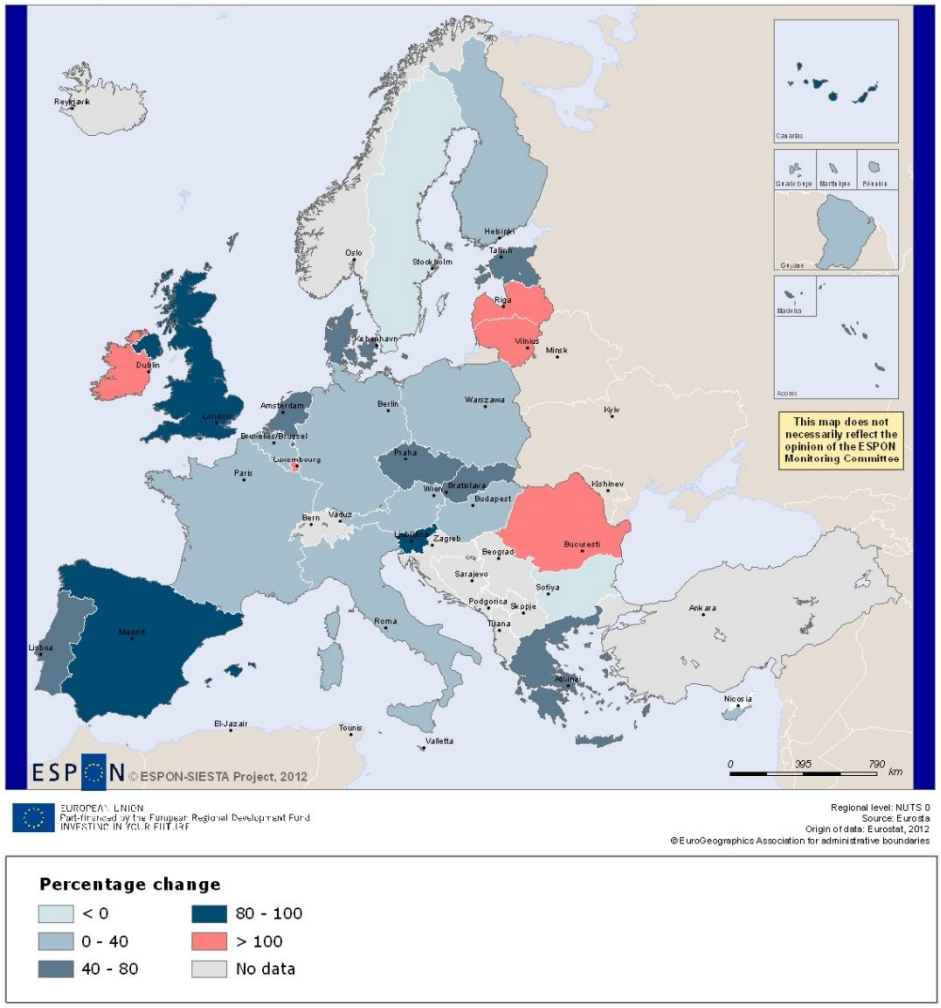
In conclusion, EU member states are faced with the challenge of ensuring long-term public finance stability. What makes rising to this challenge more difficult is that apart from the effect of the global crisis, the ageing

society in Europe will have an inexorable effect on member states' budgets.

Map 10

General government gross debt change in the years of the crisis, 2007-2011

Percentage change (%)



3. General remarks and policy recommendations

The analysis of maps on competitiveness and economic growth clearly illustrates the negative changes in this respect, which have occurred in most regions and countries in Europe since the beginning of the 21st century. There is no doubt that these changes are to a great extent, the result of the ongoing downturn since 2007, or the economic crisis which began in the field of banking and finance in the U.S., and in a broader context – being the result of the many faces of globalization. In 1999, Krugman wondered whether globalization would mean a new economic boom, or whether it would lead to another global economic crisis similar to that of the late 20s and 30s of the 20th century. Today it can certainly be said that, generally speaking, in Europe, particularly in the euro-zone countries, globalization has contributed to the crisis, however, for some countries, regions or cities in Europe and the world it has turned out to be a beneficial process. Economic growth is present, inter alia, in countries and regions of Eastern Europe, where financial and economic ties due to the historical past of these countries and regions, are not as high as in Western Europe and where a vast majority of these countries use their local currency allowing them to avoid the consequences of the mistakes of the financial and economic policies of other countries (especially those which are part of the monetary union). At the same time these countries have a greater possibility of regulating the rate of their currency and influencing the amount of national exports.

It is worth mentioning that the economic problems of certain countries or regions in Europe are not only the result of improper decision-making regarding development, but are largely due to financial or economic ties with entities which operate in other regions or countries in Europe and the world. Therefore, defying the current unfavorable trends in development in Europe and the world will require coordinated and system actions at an international (WTO, IMF, World Bank, G7, G8, G20, etc.), EU, national and regional level.

The need to take specific action to combat the crisis has been recognized by the European Commission. In order to solve the biggest issues and to achieve the objectives of the EU 2020 strategy there are plans to fully make use of the instruments available to the EU, that is, primarily the single market, the financial instruments as well as the tools of external policy. However, it seems necessary to first develop a credible crisis exit strategy, and to continue the financial system reform, to carry out budget consolidation for long-term economic growth and to improve the coordination within the Economic and Monetary Union. There is no doubt that the EU management tools used to date have become devalued, therefore it is necessary to develop new tools and implement a stronger

economic governance model. It seems particularly significant to implement adequate regulations (control) in the financial sphere at the EU level which will, on the one hand, lead to structural changes in the economy, and on the other hand minimize the risk of similar crises in the future. It is accepted that one of the reasons for Europe's current economic problems is the inability to maintain competitiveness and satisfying economic growth. Therefore, it is necessary to take action so as to improve export competitiveness of European economic enterprises and to make use of mechanisms of economic growth based on knowledge and intense use of human capital. It would also be desirable to further economic development and create European competitiveness by making use of the processes of globalization, and also by improving the optimism of the inhabitants of Europe, as this creates favorable conditions for promoting positive thinking and increasing their initiative and enterprise. These actions, in accordance with the principle of subsidiarity, if possible should also be carried out at the lower levels of government, (at the national and regional level).

There is no doubt that most actions taken to increase the growth and competitiveness of the economy are determined by the national level. This is due to the fact that states determine the basic rules of economy, employee remuneration, social security, fiscal policy, etc. The scope of this influence, however, seems to have decreased significantly as a result of the processes of globalization. In the traditional approach, it was possible to treat the national economy as an individual system which was connected to the outside world, yet at the same time it was viewed as a self-contained whole. In such conditions, the actions taken by a country were able to affect its internal economy, and create links with the world. In terms of globalization, however, the amount and nature of the links with the outside world result in the fact that, actions taken in one country have economic repercussions in the business activity carried out in another part of the world. As a result, the economic processes of a given country are increasingly affected by the decisions made by enterprises which are often located in remote parts of the globe. A network of international links creates favorable conditions for easy transfers of both supply and demand impulses. This effect is also enhanced by the increasingly important role played by enterprises which operate within the framework of transnational corporations (TNC) and the progressive informatization policy and development of the e-economy which exceeds national borders. The pressure which is put on national governments by the so-called "international markets", is a factor which hinders national economic policy. These markets may be identified with certain interest groups which control the size and direction of financial flows on a global scale (Tomidajewicz 2012). All this, and still other factors, such as the

neo-liberal economic paradigm, cause severe limitations in terms of allowing countries to conduct an effective national economic policy. Also in this case, there is a need for developing new tools, but also making more use of traditional tools in order to allow countries to actively affect the economy. This means formulating a monetary and credit policy, a fiscal and budget policy, as well as an income and pricing policy which would lead to minimizing various risks and having economic relations with foreign countries. Moreover, it appears that stable development of a country should create favorable conditions for the development of the so-called real economy. That is, an economy where the production of goods and services takes place and where there are processes of consumption rather than financial-economic processes, which only involve cash flows that are contractual representatives of the actual value (often inadequate). However, there are little chances of carrying out such profound transformations in the financial sector which would allow it to play an ancillary role to the real economy (Tomidajewicz 2012, Dymarski 2012).

Some guidelines as to the action to be taken in order to improve economic development and increase competitiveness at various levels of government, including the regional level as well, are included in the seven flagship initiatives, supporting the three pillars of the EU2020 strategy, and in particular in the following initiatives:

- "Innovation Union" - that is, measures to improve framework conditions and access to financing research and innovation, so that innovative ideas can be turned into new products and services, which in turn contribute to economic growth and creating new jobs,
- "Resource efficient Europe" – an initiative for separating economic growth from resource use, transforming to a low carbon economy, increasing the use of renewable energy, upgrading transport and promoting energy efficiency; and
- "An industrial policy for the globalization era" - an initiative for improving the business environment, especially for SMEs (small and medium enterprises), and for supporting development of a strong and sustainable industrial base, particularly high-tech industry able to compete in world markets.

Sources of economic growth and competitiveness of European regions are therefore largely sought in the complete and skilful use of development potentials and possibilities, which these regions currently possess. This means, making use of the leading position of European regions in search of new processes and technologies, including environmentally friendly technologies, introducing intelligent networks based on ICT, strengthening the competitive advantage of European business and promoting the

importance of resource efficiency. Achieving these objectives which create favorable conditions for sustainable growth, will most likely require cooperation and the taking of joint, inter-regional economic initiatives.

Analyses of correlation between GDP per capita in PPS in 2009 and the selected 32 characteristics of socio-economic development show that the productivity of the economy is mostly determined by the percentage of people with higher education (tertiary educated), and human resources in science and technology. To a somewhat lesser extent, the productivity of the economy is the result of the share of the ICT sector in business, professional, scientific and technical activities, industrial activities, financial and insurance activities, the number of granted patents and access to the internet. Whereas, the lowest level of GDP per capita can be associated with a high share of agriculture, forestry and fishing in the economic structure and a high proportion of early leavers among young people. Therefore, it can be stated that economic growth is largely the result of social development (mainly the level of education of the population and whether they have broadband internet access) and the level of industrial development (however this primarily concerns the high-tech industry). Thus, economic growth and developing economic competitiveness are the major objectives at different administrative levels (local, regional, national and international). It should also be borne in mind that they are determined to a large extent by social development, the development of an appropriate economic structure, but also by increasing labor productivity, which is especially important in the case of the regions of Eastern Europe.

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The ESPON 2013 Programme is part-financed by the European Regional Development Fund, the EU Member States and the Partner States Iceland, Liechtenstein, Norway and Switzerland. It shall support policy development in relation to the aim of territorial cohesion and a harmonious development of the European territory.

ISBN