

Edited by:

Ewa Latoszek, Magdalena Proczek, Agnieszka Kłos,
Marta Pachocka, Ewa Osuch-Rak

FACING THE CHALLENGES IN THE EUROPEAN UNION

Re-thinking EU Education and Research
for Smart and Inclusive Growth (EuInteg)

POLISH EUROPEAN COMMUNITY STUDIES ASSOCIATION
WARSAW 2015

The publication of this book is co-funded by the Erasmus+ Programme of the European Union and the Ministry of Foreign Affairs of the Republic of Poland under the competition "Cooperation in the Area of Public Diplomacy 2015".

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Reviewers

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Professor Martin Holland, University of Canterbury
Professor Tadeusz Sporek, University of Economics in Katowice

Editorial cooperation and proofreading

Magdalena Daniel
Kinga Jambroszczak

Cover design

Agnieszka Miłaszewicz

Editorial Supervisor

Czesława Kliszko, Warsaw School of Economics

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ACKNOWLEDGEMENTS

Preparation and publication of this book was possible thanks to support from the institutions promoting research and scientific cooperation.

We have received financial support and assistance from:

- the European Union, within the framework of the Erasmus+ Programme,
- the Ministry of Foreign Affairs of the Republic of Poland, under the competition “Cooperation in the Area of Public Diplomacy 2015”,
- Warsaw School of Economics,
- the University of Warsaw,
- the University of Gdańsk,
- the European Community Studies Association ECSA World.

In addition, we have received high and honorary patronage from:

- the European Parliament,
- the European Commission Representation in Poland,
- the Ministry of Science and Higher Education,
- the Ministry of Economy,
- the Ministry of Infrastructure and Development,
- the National Centre for Research and Development,

as well as patronage from:

- the Polish Bank Association,
- the Association of TOP 500 Innovators.

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Adam A. Ambroziak*

REGIONAL STATE AID AND CONVERGENCE OF REGIONS IN THE VISEGRAD GROUP COUNTRIES AFTER ACCESSION TO THE EUROPEAN UNION

Abstract

Regional state aid has been aimed at reducing the additional costs incurred by entrepreneurs who decide to invest in underdeveloped regions, typically with low-skilled labour force, poor transport and telecommunication infrastructure, and lack of networks of suppliers and buyers. Entrepreneurs were offered the opportunity to induce additional investment or economic activity in selected regions. Regional state aid was offered in all NUTS-2 regions in the Visegrad Group countries, however in the period of 2007–2013, the maximum ceiling on this kind of public support was defined under EU rules in order to adjust it to real needs of regions and ensure a level playing fields for all investors. It means that the maximum ceilings on regional state aid depended on the level of economic and social development of a given region: it was higher in the poorest and lower in more developed areas. Therefore, we expected measurable evidences of positive correlation between ceilings on regional state aid in regions and indices of social and economic development of assisted areas in the Visegrad Group countries. However, on the basis of our research we observed no clear connection between ceilings on regional state aid and changes in economic activities rate, employment and unemployment rate, and the ratio of GDP per capita to the EU average. Thus, we concluded the lack of statistical proof of a need for more regional state aid in the lagging regions.

Keywords: regional state aid, regional development, convergence, divergence, region, GDP, employment, unemployment, European Union, the Visegrad Group countries

Introduction

The EU law of 1998 applied in the years 2000–2006 provided a clear approach towards territorial support: regional aid was conceivable only if it was used sparingly and remained concentrated on the most disadvantaged regions (Official Journal C 74: 9).

* Collegium of World Economy, Warsaw School of Economics; adam.ambroziak@sgh.waw.pl

However, it is worth noting that only the rules for the next period 2007–2013 specified the global aim of regional interventions: the promotion of the economic, social and territorial cohesion of the Member States and the European Union as a whole (Guidelines 2006: 13). That approach derived from the provisions of the Treaty on the functioning of the European Union (previously the Treaty establishing the European Community). On the one hand, it states in art. 107.1 that any aid granted by a Member State or through State resources in any form which distorts or threatens to distort competition by favouring certain undertakings or the production of certain goods is, in so far as it affects trade between Member States, incompatible with the internal market. On the other hand, the Treaty allows granting regional state aid, saying that both: [art. 107.3(a)] the aid to promote the economic development of the areas where the standard of living is abnormally low or where there is serious underemployment and [art. 107.3(c)] the aid to facilitate the development of certain economic areas if it does not adversely affect trading conditions to the extent contrary to the common interest, might be considered to be compatible with the internal market.

The Commission argued that regional state aid should promote the expansion, modernisation and diversification of the activities of the establishments located in those regions and encourage new firms to settle there. Thus it aimed at reducing the additional costs incurred by entrepreneurs who decide to invest in underdeveloped regions, typically with low-skilled labour force, poor transport and telecommunication infrastructure, and the lack of networks of suppliers and buyers and offered entrepreneurs the opportunity to induce additional investment or economic activity in selected regions. The object of regional aid was to secure either productive investment or job creation linked to investment (Official Journal C74; C54).

Regional state aid is one of the forms of public intervention in the market. The Member States of the EU used this kind of state aid as a tool improving regional attractiveness to investors in order to enhance economic and social development of the lagging areas (Ambroziak 2015a). However, there are many arguments for and against governmental actions at the regional level (Ambroziak 2014b). On the one hand, there are many political (Martin 2003; Camagni and Capello 2010) and economic arguments (van Dijk et al. 2009; Armstrong and Taylor 1999; Parr 2014; Markusen 1996) claiming the need for regional interventions. Many researchers argued that market mechanisms not only cannot induce economic convergence, but they can rather exacerbate the existing inequality (Boldrin, Canova 2001). Therefore some authors noted that national output would be raised if regional differences were diminished and that the market mechanism on its own is an ineffective means of reducing these differences (Needleman, Scott 1964). On the other hand, there is a wide range of studies showing that overall results of late regional policy were disappointing (OECD

2009a, 2009b; World Bank 2009). The recent debate on regional policy focuses also on whether policies should be pro-equity or pro-efficiency. Therefore the aim of new regional policy should be to maximise national output by assisting and encouraging each individual region to reach their growth potential endogenously. New regional policy differs from the 'old approach' whose objective was compensating for regional differences in unit capital costs (due to productivity gaps) and rebalancing labour and capital flows. It should cover the production of bundles of integrated, place-tailored public-goods and services, designed and implemented by eliciting and aggregating local preferences and knowledge through participatory political institutions, and by establishing linkages with other places (Barca 2009). It seems that although many reports and analysis on effectiveness of regional state aid were published, recently adopted rules for the years 2014–2020, similar to previous guidelines for the period of 2007–2013, did not fully accommodate a new paradigm of regional policy (Ambroziak 2014a).

Bearing in mind that state aid can distort competition, even as it was granted in underdeveloped areas, the permissible ceilings on regional state aid were established. They should reflect the relative seriousness of the problems affecting the development of the regions concerned (Official Journal C 54: 13). Taking this into account, regional state aid map for each Member State was adopted by the Commission as an integral part of relevant guidelines. It identified assisted regions, their classification according to their relative development level and the ceilings on state aid for initial investment. To this end, the Commission considered that the region should be assisted if, being a NUTS 2 geographical unit, it has a per capita gross domestic product (GDP), measured in purchasing power standard (PPS) of less than 75% of the Community average. Moreover, the regional state aid guidelines provided possibilities to attract investors to the poorest regions, offering them more state aid in comparison to better developed regions, where the maximum admissible intensity ceilings were lower (Official Journal C 54). After enlargement in 2004, almost all regions from new Member States, including the Visegrad Group countries, offered the highest ceilings on regional state aid. However, in subsequent years, the European Commission differentiated ceilings and changed a classification of regions to enhance support to entrepreneurs in the poorest areas and assist them in a convergence process.

The main objective of this paper is to answer the question whether regional state aid ceilings in the Visegrad Group countries after accession to the European Union had a substantial impact on the economic and social development of NUTS 2 regions (including changes in an economic operators' concentration, labour market and their national convergence or divergence). Due to the fact that the V4 countries, with the exemption of Poland, did not collect data on regional state aid at the regional level, but only at the national/central level, we decided to analyse the admissible ceilings

on regional state aid which, as we assumed, showed a relative potential power of subsidies offered and granted to entrepreneurs in a given area. According to the recent research, the nominal value of regional state aid in NUTS 2 regions in Poland significantly differed in the period of 2005–2012. However, taking into consideration ceilings on regional state aid and the number of economic operators in a given area, the distribution of regional support in terms of relative values was equal in all regions (with the exemption of the best developed) (Ambroziak 2015b). Bearing in mind that (1) a cumulated value of regional state aid in relation to GDP was comparable in the Visegrad Group countries in the period of 2004–2013, (2) all rules concerning public assistance and EU funds were identical in all NUTS 2 regions in the Member States of the EU, we assumed that the impact of regional state aid on the economic and social development in assisted territories, broken down by their level of development in terms of GDP *per capita* in relation to the EU average, depended on the ceilings of public aid in regions.

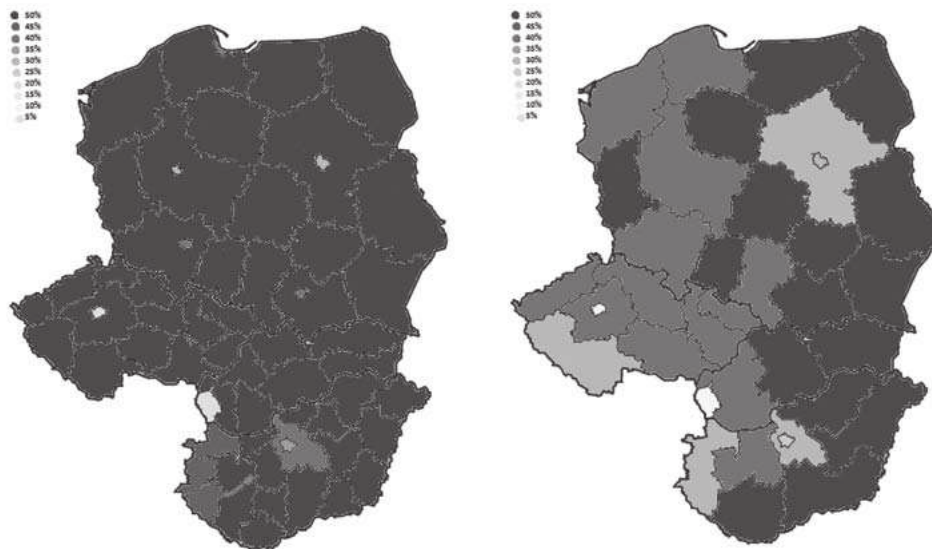
1. Regional State Aid in the Visegrad Group Countries in the Years 2004–2013

The Visegrad Group (V4) countries had already partially applied the EU law on state aid under their association agreements before the accession to the European Union. According to their respective Europe agreements, any public aid which distorted or threatened to distort competition by favouring certain undertakings or the production of certain goods was treated as incompatible with the association agreements. However, before the accession to the EU, any public aid granted by respective candidate countries was assessed taking into account the fact that they were regarded as areas identical to those territories of the Community described in Article 107.3(a) TFEU [then 92.3(a) TEC]. On that basis the V4 countries prepared their respective regional state aid maps before accession, which were prolonged after joining the EU till the end of the then financial perspective 2000–2006.

For the period of 2004–2006, the V4 countries regions were classified for regional state aid on the basis of an average of GDP *per capita* for 2000–2002, when the last trade barriers were being eliminated in import from the EU and a fast and radical restructuring process was being conducted. Then the level of GDP *per capita* in comparison to the EU average was extremely low. It effected that almost all NUTS II regions of the V4 countries were qualified to apply maximum ceilings on regional aid to large companies up to 50% of the Gross Grant Equivalent (GGE). However,

there were some exemptions for the biggest cities and capitals in Poland and the Czech Republic, where admissible ceilings were lowered to 40% (Kraków), 35% (Budapest), 30% (Warsaw) and even to 20% (Prague in the Czech Republic, and for the whole region surrounding the capital city of Bratislava in Slovakia). In case of small and medium-sized enterprises, the aforementioned ceilings were increased by 15 percentage points gross (Map 1).

Map 1. Ceilings on Regional State Aid in NUTS 2 Regions from the Visegrad Group Countries in the Period of 2001–2006 and 2007–2013

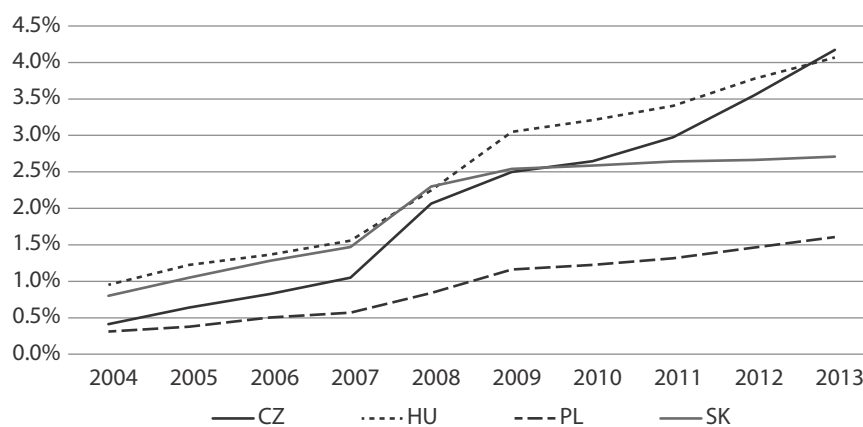


Sources: own work based on Official Journal C 74; Official Journal C 54.

The new regional state aid rules came into force two years after the big enlargement of 2004. First, the previous guidelines expired by the end of 2006; second, the New Financial Perspectives for the period of 2007–2013, which provided i.a. the V4 countries with a huge amount of financial sources in the form of European funds, were agreed, thus there were concerns regarding the consequences for competition within the internal market of the EU. They resulted in making the guidelines more restrictive and lowering the maximum admissible ceilings on public support for the majority of regions. However, the poorest areas from the V4 countries were still allowed to offer regional state aid at the maximum level of 50% GGE. This concerned: Eastern Poland, some regions in Central Poland and just one in Western Poland, Eastern Slovakia, and Eastern and South Hungary. For the period 2007–2013 the maximum admissible ceiling on regional state aid in many better developed regions in the V4

countries was lowered to 30–40%. The biggest change (in comparison to the period of 2001–2006) and the reduction of the admissible intensity of regional aid concerned the Czech Republic, Western Hungary, and Western Poland. It is also worth noting that many better developed regions, mainly including the capitals of the V4 countries, either lost eligibility to grant regional state aid or their admissible intensity ceilings were substantially decreased.

Figure 1. Ratio of a Cumulated Value of Regional State Aid (Excluding EU Sources Within EU Funds) to Gross Domestic Product in the Visegrad Group Countries in 2004–2013



Sources: own work based on DG COMP.

The potential impact power of public support¹ on economy can be observed by analysing the ratio of financial assistance to GDP. Taking into account the ratio of the cumulated value of regional state aid to GDP, it increased evenly for all the V4 countries from 2004 to 2007. Then, as the new Financial Perspective was implemented, and new rules on regional state aid entered into force, the situation in the Visegrad Group countries slightly changed. As regards the Czech Republic and Hungary, one could observe a substantial increase in the ratio of the cumulated value of regional state aid to the annual value of GDP reaching over 4% in 2013. At the same time, Slovakia and

¹ It should be underlined that it was the period of time when donors and beneficiaries, as well as authorities collecting data on state aid, were learning on the notion of public intervention, its recognition, classifications and assessment. Thus data after the enlargement in 2004 are much more reliable and complete. Data on state aid provided by the European Commission (DG COMPET) cover only the value of public support granted to entrepreneurs by national/local authority from the national/local budget, including part of EU funds co-financed by the national budget. It means that a huge amount of money distributed by the national/local authorities within the EU funds, which came from the EU budget, were not included in statistics on state aid provided by the Commission.

Poland also recorded an increase, although slightly lower, up to respectively 2.7 and 1.6% of GDP (Figure 1). However, we can assume that potential relative impact of regional state aid should be almost exactly the same in the case of the Czech Republic, Hungary and Slovakia, while slightly smaller in Poland.

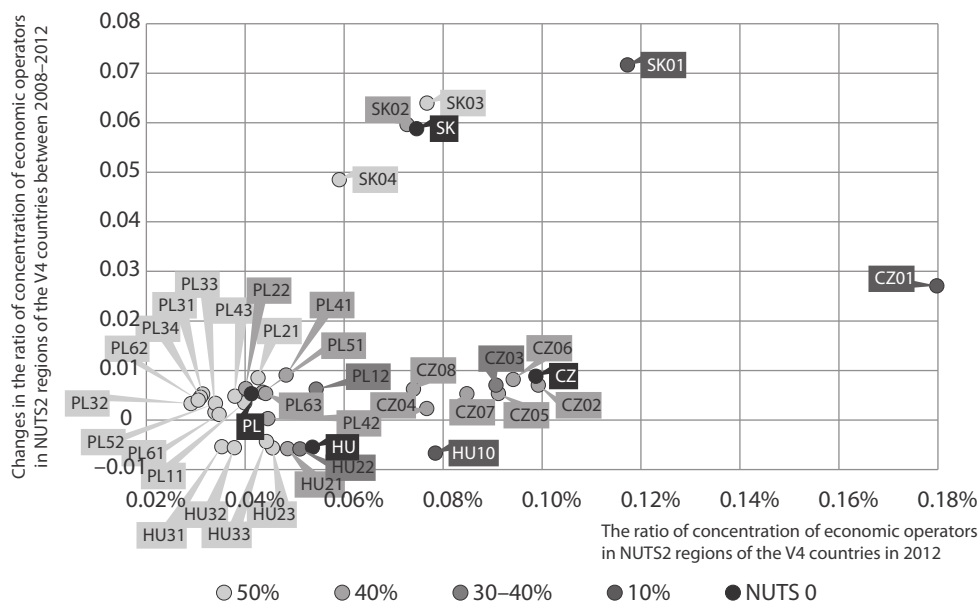
2. Impact on Economic Activities

2.1. Economic Activity Concentration

Regional state aid aimed at improving business conditions for new investors who should be attracted to locate their companies in assisted areas. However, public intervention did not have an impact on beneficiaries, but on other companies as well, which could represent suppliers, service providers, business customers or even competitors. Therefore, we analysed the changes in the concentration of economic operators (in terms of the relation of the number of economic units to population) in NUTS 2 regions in the Visegrad Group countries in the period of 2008–2012 (the period was shortened due to data availability). We expected, taking into consideration the regional state aid objectives, that the change in concentration should be bigger in the poorest regions with lower initial value of the indicator (but with much higher ceilings on regional state aid) in comparison to better developed areas (with lower ceilings on public assistance).

The highest levels and the biggest changes of the economic activity concentration in 2012, in comparison to 2008, were observed in the most developed capital regions in the Czech Republic and Slovakia, where the intensity of regional state aid was the lowest (10% of GGE). Moreover, in case of Slovakia, all its regions recorded a change 5–7 times bigger in comparison to other regions of the V4 countries. However, they reached the ratio of concentration in the middle of the scale. It is worth noting that due to the fact that all levels of ceilings on regional state were represented in those areas, one can state that for the maximum intensity of public support, the concentration rate change did not matter (Figure 2).

Figure 2. Changes in the Concentration of Economic Operators in NUTS 2 Regions in the Visegrad Group Countries 2008–2012



Notes: abbreviations in annex.

Source: own work based on Eurostat.

Another group of regions consisted of territories mainly from the Czech Republic, whose GDP *per capita* was between 30–40% of the EU average. They recorded a smaller change in the economic activity concentration rate in 2012 in comparison to 2008, however the final values were 2–3 times higher in comparison to the poorest regions in the V4 countries, while the ceiling of admissible regional state aid was lower and ranged in the middle of the scale (between 30–40%).

As regards the majority of Polish regions, we can observe that changes in the concentration ratio were not correlated with a ceiling on regional state aid. All of them, irrespectively of what admissible state aid ceilings were applied, recorded the lowest increase in the ratio of the number of economic operators to population in 2012. However, the worst situation was noted in NUTS 2 regions from Hungary. Although their level of concentration was close to majority of Polish regions, they recorded decrease in the concentration of economic operators in comparison to 2008.

Thus, one can observe different changes in and levels of the concentration rate of economic operators in NUTS 2 regions of the Visegrad Group countries, irrespectively of applicable ceilings on regional state aid. The biggest changes and the highest final

values were reached by the most developed regions (mainly capital areas), while the smallest increase (or even decrease) in the poorest areas, where ceilings were the highest. It may prove that regional state aid, dedicated to the poorest regions, did not have a substantial effect on the ratio of the number of economic operators to population in NUTS 2 regions of the V4 countries.

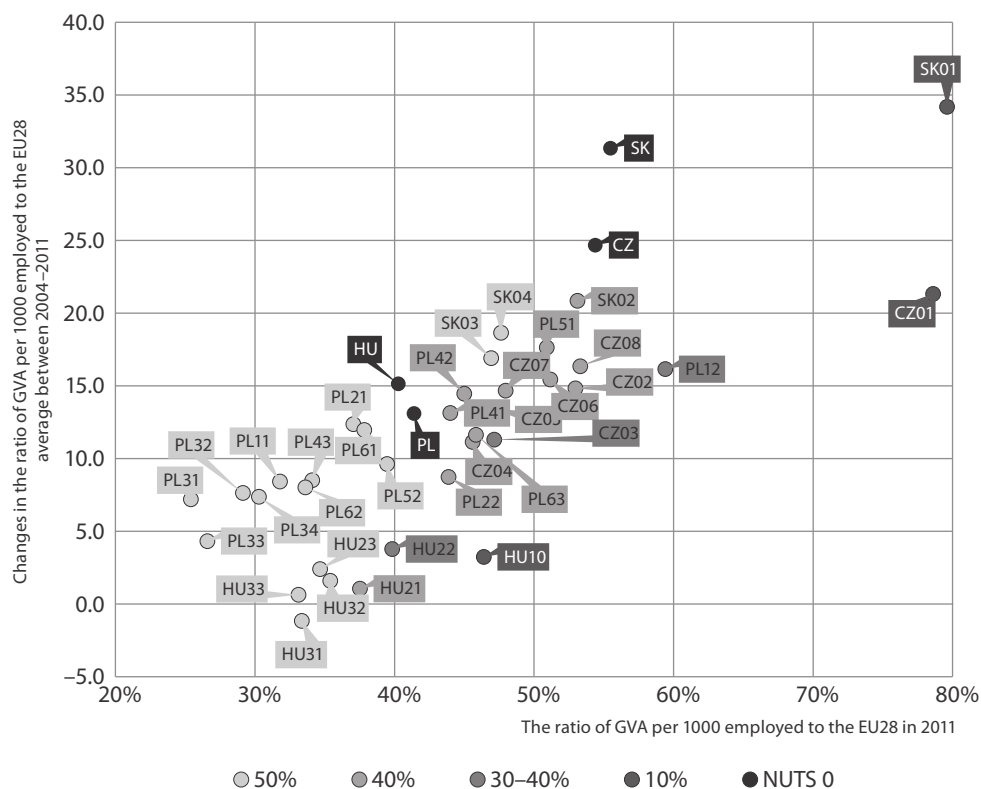
2.2. Productivity

According to our assumption, higher concentration and higher economic activity concentration rate should lead to the improvement of labour productivity in a given region. Although we did not find a measurable impact of regional state aid on changes in the level of economic activity concentration, we expected that higher ceilings on admissible public support should lead to an increase in productivity due to financial injections and inflow of new investments.

As regards the regional distribution of changes in productivity in relation to the EU average, we found a linear correlation between the value of the ratio of Gross Value Added (GVA) per 1000 employed and changes in this indicator in regions in the Visegrad Group countries. The biggest increase (almost 35 p.p.) and the highest ratio of GVA per 1000 employed (slightly less than 80% of the EU average) in the period of 2004–2011 were accounted for by the two most developed capital regions of Slovakia and the Czech Republic, where the ceiling on regional state aid was the lowest (Figure 3).

The level of productivity in relation to the EU average of the next group of NUTS 2 regions ranged between 40–60%. This group mainly consisted of territories whose GDP *per capita* was between 45–75% of the EU average, and the intensity of public support was slightly lower compared to the aforementioned, relatively best developed regions. However, it is worth noting that there were two other capital-regions from Poland and Hungary, as well as the two poorest regions from Slovakia in this group. That shows a high differentiation in this group of regions in terms of maximum ceilings on regional state aid. The last observed category of regions consisted of the poorest territories with GDP *per capita* below 45% of the EU average, where a ceiling of admissible regional state aid was the highest. Although the change in the ratio of GVA per 1000 employed was positive, the level of productivity remains the lowest among regions in the V4 countries (with the exemption of Slovak's regions).

Figure 3. Changes in the Ratio of GVA per 1000 Employed in NUTS 2 Regions of the Visegrad Group Countries to the EU Average Between 2004–2011



Notes: abbreviations in annex.

Source: own work based on Eurostat.

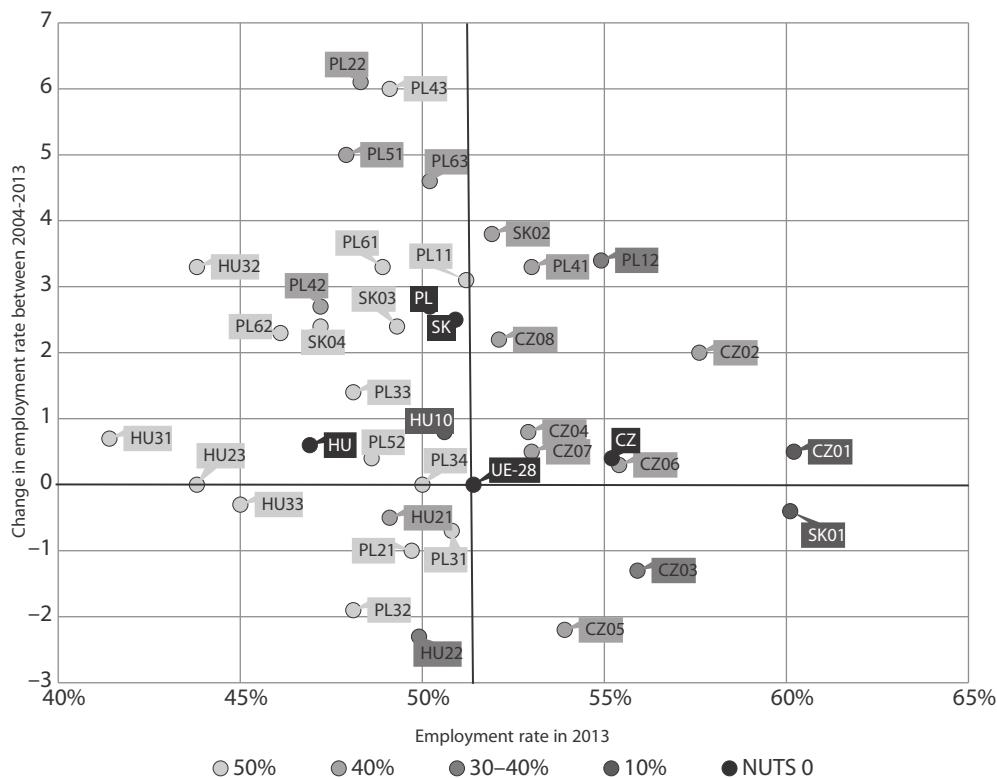
This analysis proves a weak correlation between the ceilings on regional state aid and the changes in and final levels of productivity in regions in the V4 countries. Although the highest ceilings on regional support were applied in the poorest regions, the territories whose GDP per capita was below 45% of the EU average recorded the smallest increase in 2011 in comparison to 2000 and reached the lowest level of productivity in the V4 countries. Moreover, one observed a substantial change in two the richest capita regions, where the ceilings on public support were the lowest. Finally one observed that an increase in productivity was positively related with the initial value in all regions: the highest increase was noted in regions whose productivity was the highest, and the lowest in the poorest areas whose productivity was the lowest.

2.3. Labour Market

As mentioned before, one of the most important goals of regional state aid was regional development, which can be measured also in terms of changes in the labour market. Therefore, it is worth analysing the potential consequences of regional state aid on employment and unemployment rates in lagging regions in the V4 countries. According to Eurostat, the economic activity rate represents the employed and unemployed persons as a percentage of the population living in private households. Taking into account the potential effects of public support, we assumed that the improvement of investment attractiveness of regions to entrepreneurs (through higher ceilings on regional state aid) should increase the economic activity rate in a given region. The analysis of the changes in the employment rate and ceilings on regional state aid applied in the NUTS 2 regions should allow us to formulate conclusions on possible relations between these variables. We expected that higher intensity of regional state aid should attract inflow of new investment to a given region and induce entrepreneurs to create new jobs. Thus, the employment rate should increase.

The highest rate of employment was recorded in two capital-regions of Slovakia and the Czech Republic in 2013, where the ceiling on regional state aid was the lowest (only up to 10% of GGE) (Figure 4). The observed change in this index was respectively slightly positive and slightly negative in 2013 in comparison to 2004. A substantial increase in the employment rate (4.5–6 p.p. in the period of 2004–2013) was noted in Polish regions, where the ceilings on regional state aid ranged from 40% in Śląskie, Dolnośląskie and Pomorskie to 50% in Lubuskie. An increase ranging between 2–4 p.p. was observed in regions either moderately developed with the ceiling up to 40% (Wielkopolskie in Poland, Západné Slovensko in Slovakia, Strední Čechy and Moravskoslezsko in the Czech Republic), or in less and the least developed areas with the highest admissible ceiling on public support up to 50% (e.g. Kujawsko-Pomorskie and Warmińsko-Mazurskie in Poland, Stredné Slovensko and Východné Slovensko in Slovakia, Észak-Alföld in Hungary). There is also a group of regions which recorded only a slight increase or even a drop in the employment rate in the period of 2004–2013, although many of them offered the highest ceiling on regional state aid up to 50% of GGE (e.g. Małopolskie, Lubelskie, Podkarpackie in Poland, Dél-Alföld in Hungary) or slightly less, up to 40% (e.g. Közép-Dunántúl in Hungary and Severovýchod in the Czech Republic).

Figure 4. Changes in the Employment Rate in the NUTS 2 Regions in the Visegrad Group Countries in the Period of 2004–2013



Notes: abbreviations in annex.

Source: own work based on Eurostat.

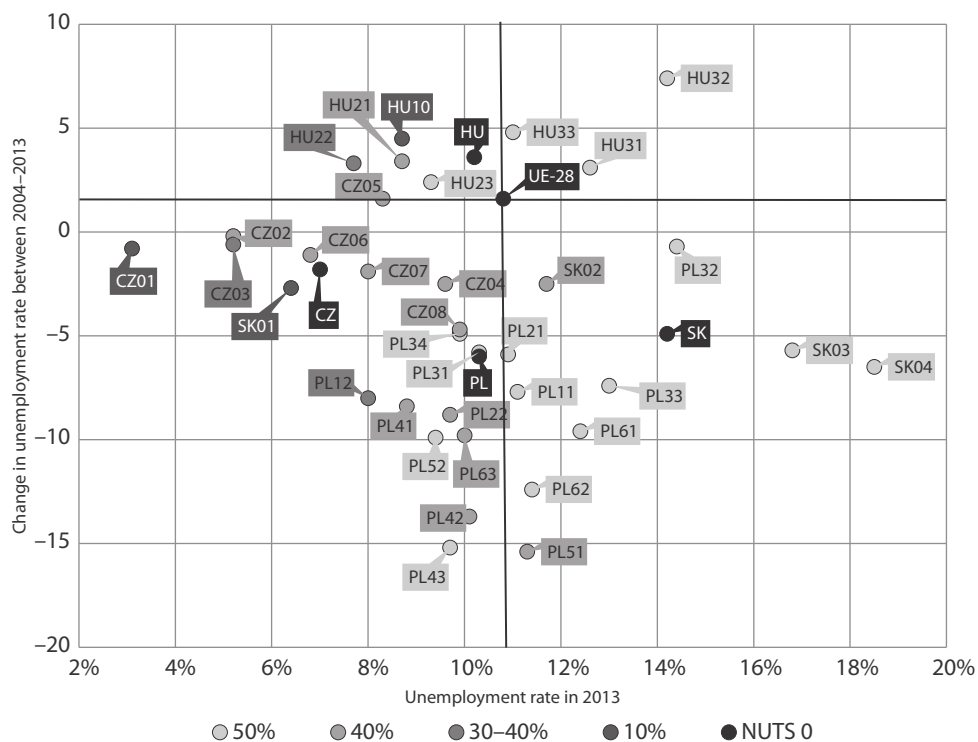
Thus, one could not find a clear relation between ceilings on regional state aid and changes in employment rate, although this kind of public subsidies should induce entrepreneurs to invest and create new jobs. Either a substantial increase or a dramatic decrease in employment rate was observed in the regions no matter what maximum ceilings on regional state aid were applied.

It was also assumed that an increase in the employment rate should lead to a decrease in unemployment rate through the creation of new jobs, either by new investors induced by public subsidies, or by entrepreneurs expanding their businesses in cooperation with new companies attracted to a given region due to a higher ceiling on regional state aid offered there.

The biggest drop in the unemployment rate (ranged between 10–16 p.p. in the period of 2004–2013) was noted in Polish regions (for example: Lubuskie and

Warmińsko-Mazurskie, where intensity of regional state aid was up to 50%, and Dolnośląskie and Zachodniopomorskie with ceiling on public subsidies up to 40% and in capital-region Mazowieckie with much lower intensity up to 30%) and Slovak regions (Stredné Slovensko and Východné Slovensko), however the latter's unemployment rate amounted to the highest level of 17–18.5% (Figure 5). The remaining regions in the Visegrad Group countries can be divided into two groups. The first one mainly consists of areas from the Czech Republic and Slovakia, where the unemployment rate decreased only slightly in comparison to the EU average in the period of 2004–2013. The second group includes regions from Hungary, offering all levels of ceilings on state aid (from 10 up to 50%), where the unemployment rate grew by 2.4–7.4 p.p. in 2013 compared to 2004.

Figure 5. Changes in the Unemployment Rate in the NUTS 2 Regions in the Visegrad Group Countries in the Period of 2004–2013



Notes: abbreviations in annex.

Source: own work based on Eurostat.

It shows again that it is impossible to identify a clear relation between the intensity of regional state aid and economic development of the NUTS 2 regions in the Visegrad Group countries in terms of unemployment rate. In the period of 2004–2013, there were regions which offered the highest ceiling on regional state aid and recorded an increase in unemployment rate. At the same time, some regions were found where, although admissible ceilings on public subsidies were lower, the unemployment rate decreased in the period of the study.

3. The Process of Convergence in Terms of GDP

The outcome of granting regional state aid, which should improve economic conditions in assisted regions, can have an influence on economic development at both regional and national levels and an impact on convergence and divergence of assisted regions. The European Commission classified the EU Member States according to the ratio of their Gross Domestic Product *per capita* to the EU average. As of 2013, the group of less developed Member States consisted only of those who joined the EU in or after 2004, including two of the V4 countries: Poland and Hungary. They recorded the ratio of GDP *per capita* to the EU average in 2013 respectively 68% and 66.8%. Two other Visegrad Countries: the Czech Republic and Slovakia reached much higher levels, respectively 76.3% and 79.9%, and they were included in the group of moderately developed Member States (GDP *per head* between 75% and 90%).

As mentioned before, the primary objective of regional state aid granted to entrepreneurs was not linked to the EU cohesion, but rather to national (interregional) convergence. The lagging regions, assisted by public resources offered to companies, should have caught up with more developed areas. In order to grasp the effects of convergence or divergence in the regions in the V4 countries, the dispersion of regional GDP *per capita* (at NUTS level 2) was analysed. This index is calculated by the sum of the absolute differences between regional and national GDP *per inhabitant*, weighted with the share of population and expressed in percent of the national GDP *per capita*. The value of the dispersion of GDP *per inhabitant* is zero, if the values of regional GDP are identical in all regions of the country, and it will show, *ceteris paribus*, an increase if the differences between the values of regional GDP *per inhabitant* among regions are rising. Following the Eurostat definition, The European Commission used a formula which summarised the differences in GDP *per inhabitant* across the regions of the same country:

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

where:

y_i is the regional GDP per inhabitant of region i ,

Y is the national average GDP per inhabitant,

p_i is the population of the region i ,

P is the population of the country,

n is the number of regions of the country.

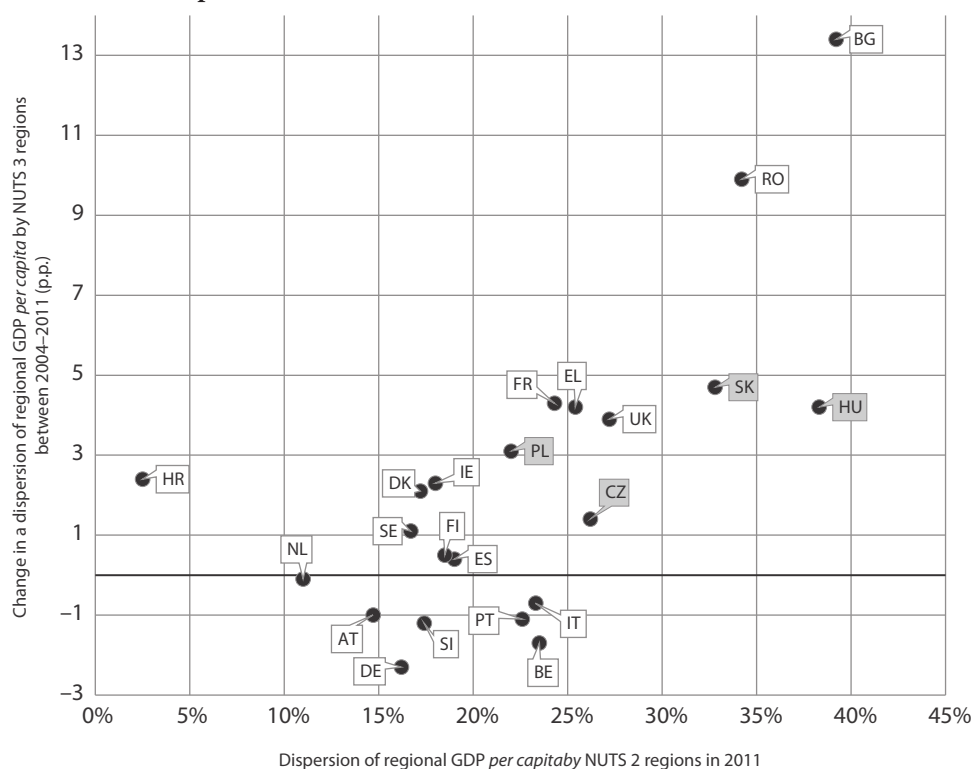
According to available data, we can say that the highest level of dispersion of regional GDP *per capita* was observed in the countries which joined the EU in or after 2004 (Figure 6). There were Romania, Bulgaria and two of the V4 countries: Hungary and Slovakia, who reached indices respectively 38% and 33% in 2011. It means that the GDP of all regions of the latter countries, weighted up on the basis of regional population, differs from the national value by an average of 38% and 33%. In the case of Poland and the Czech Republic, the level of divergence was much lower: 22% and 24.8%. Similar results were observed in other Member States, for example: France, the United Kingdom, Greece, Portugal, Italy and Belgium. However, it should be noted that in the case of all Visegrad Group countries, the dispersion of regional GDP *per capita* at NUTS 2 level increased up to 4.7 p.p. in the period of 2004–2011. The aforementioned rise is worrisome, while the poorest regions in these countries, which should have caught up with the more developed ones, offered much higher ceilings on regional state aid aimed at reduction of regional disparities in the EU Member States. In contrast to new Member States, the majority of old EU Members recorded lower indices of dispersion of regional GDP *per capita* and a decreasing dispersion index, although state aid in their regions was much more restricted in the observed period.

Taking into consideration the abovementioned conclusions, it is worth analysing the position of selected NUTS 2 regions in the V4 countries in relation to the EU average. To this end, we divided all NUTS 2 regions in the Visegrad Group countries into 4 categories, whose GDP *per capita* was below 45%, ranging between 45–60%, and amounting to 60–75% and was above 75% of the EU average in 2005 (when the decision on regional state aid map, including ceilings on public support for the period of 2007–2013, was made) (Figure 7).

The richest NUTS 2 areas in the V4 countries were capital-regions (above 100% of the EU average), where the intensity of regional state aid was the lowest – 10–30% of investment. The biggest increase resulting in the highest rate of GDP *per capita* in relation to the EU average was recorded in two countries in 2011 (Bratislavský kraj

in Slovakia and Praha in the Czech Republic), where indices of regional development disparities were the highest.

Figure 6. The Dispersion of Regional GDP *per inhabitant* at NUTS 2 Level in Member States of the European Union in 2004–2011



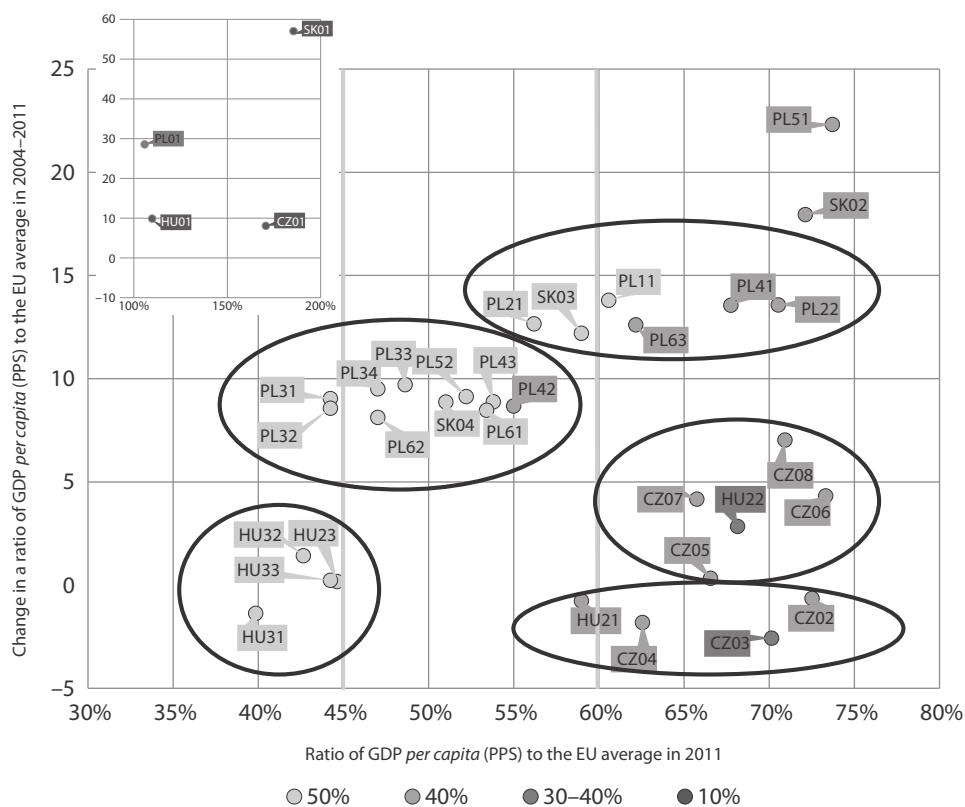
Notes: abbreviations in annex.

Source: own work based on Eurostat.

The next category covers regions, where a ceiling on regional state aid was slightly lower and ranged between 30–40% of GGE in the period of 2007–2013. The biggest increase in GDP *per capita* in relation to the EU average was observed in Dolnośląskie (Poland), Zápádne Slovensko (Slovakia), by respectively 22 p.p. and 18 p.p. in 2011 in comparison to 2004. Three other Polish regions with 40% regional state aid ceiling (Śląskie, Wielkopolskie, Pomorskie) and two with the highest (50%) state aid ceiling (Łódzkie i Małopolskie) and one Slovak region (Stredné Slovensko) recorded an increase in GDP *per capita* in relation to the EU average by 12–14%. Much lower growth of GDP *per capita* (up to only 7 p.p. in 2011 compared to 2004) was noted in four regions from the Czech Republic (Severovýchod, Jihovýchod, Strední Morava,

Moravskoslezsko) and one from Hungary (Nyugat-Dunántúl). However, although the ceilings on regional state aid in the aforementioned regions were applied at the level of 30–40%, the ratio of GDP *per capita* to the EU average decreased slightly in three regions in the Czech Republic (Jihozápad, Severozápad, Střední Čechy) and one in Hungary (Közép-Dunántúl).

Figure 7. Convergence of Visegrad Group Countries Regions in Terms of Changes in a Ratio of GDP *per capita* (PPS) to the EU Average at Current Market Prices in 2004–2011



Notes: abbreviations in annex.

Source: own work based on Eurostat.

As regards the least developed regions, regional state aid map provided the highest ceilings on public subsidies. Nonetheless, lagging areas where the aforementioned subsidies were offered at the highest admissible level, experienced much lower changes in their development. There is a group of NUTS 2 regions (mainly from Poland, with the exemption for Slovak Východné Slovensko) whose ratio of GDP *per capita* to

the EU average increased by 8–10 p.p. in 2011 compared to 2004). However, there is also a group of the poorest Hungarian regions, where this same ceiling on state aid was available, whose GDP *per capita* in relation to the EU average did not change substantially, or even decreased (Észak-Magyarország).

On the basis of the above analysis one could not find a direct relation between ceilings on regional state aid and changes in the ratio of GDP *per capita* to the EU average in NUTS 2 regions in the V4 countries. The biggest increase in regional development in terms of GDP *per inhabitant* was observed in the richest regions, where a ceiling on regional state aid was the lowest. In group of less developed regions, where medium level of ceilings on regional aid was applied, one found areas with a high positive growth of GDP *per capita*, as well as areas with a decrease in this index. Similar situation was observed in the poorest regions with the highest ceiling on state aid. However one could observe that in case of moderately developed regions with ceilings on regional state aid between 30–40% of GGE an increase in GDP *per capita* in relation to the EU average was twice as much as in the poorest regions with the highest ceiling on public support. That leads us to a conclusion on the lack of measurable evidence of a direct link between regional state aid ceilings and the economic growth of NUTS 2 regions in terms of GDP *per capita*.

Conclusions

In summary, on the basis of the abovementioned findings we can draw five conclusions:

- almost all regions in the V4 countries positively contributed to the convergence of the state as a whole to the EU average in the period of 2004–2013. Due to the fact that much better developed Member States expanded their economy, this achievement of the V4 countries was not pre-ordained;
- the biggest economic and social development in terms of an increase in GDP per capita and a decrease in unemployment rate was observed in the best developed regions in the Visegrad Group countries. This concerns mainly the regions where either the capital or large cities and industrial agglomerations were located. This tendency confirmed Krugman's thesis that entrepreneurs tend to locate close to each other, looking for agglomeration benefits in cities or industrial agglomerations, or near transport routes in better developed regions, even though the ceilings on subsidies applied there were lower in comparison to the least developed areas. It seems that they did not rely on assistance from the government, but rather were looking for a higher qualified labour force, a good telecommunication and transport

infrastructure, and a good network of suppliers and buyers. This means that public aid was not a decisive factor in entrepreneurs' location decisions;

- the poorest regions remained the poorest. Even though ceilings on regional state aid were the highest in the poorest regions in comparison to other territories, there was a lower increase or sometimes even a decrease in economic and social indices in comparison to better developed areas, where ceilings on public support were lower. This means that the European funds and other public sources offered within the regional state aid rules were not, by themselves, sufficient factors to attract new investors and boost the economic and social development in the poorest, ill-prepared regions. However, it should be underlined that there is still an open question on effects of the lagging regions without public support on economic development;
- substantial differences in the outcomes of economic and social development in the poorest and moderately (and more) developed regions leads to a divergence within the V4 countries;
- taking into consideration the recent social and economic performance of regions in the V4 countries in the period of 2004–2013, there are many doubts whether the highest ceilings on public subsidies in the poorest territories and much lower in the most developed cities or industrial agglomerations are tailored to the needs and goals of the V4 countries: convergence in relation to both the EU and national averages. On that basis we can argue that the continuation of that kind of regional policy can rather distort competition within the internal market of the EU and stimulate divergence within the V4 countries, instead of improving the overall economic growth and assisting convergence at the regional level.

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Annex

CZ – Czech Republic

CZ01 Praha
CZ02 Střední Čechy
CZ03 Jihozápad
CZ04 Severozápad
CZ05 Severovýchod
CZ06 Jihovýchod
CZ07 Střední Morava
CZ08 Moravskoslezsko

HU – Hungary

HU10 Közép-Magyarország
HU21 Közép-Dunántúl
HU22 Nyugat-Dunántúl
HU23 Dél-Dunántúl
HU31 Észak-Magyarország
HU32 Észak-Alföld
HU33 Dél-Alföld

PL – Poland

PL11 Łódzkie
PL12 Mazowieckie
PL21 Małopolskie
PL22 Śląskie
PL31 Lubelskie
PL32 Podkarpackie
PL33 Świętokrzyskie
PL34 Podlaskie
PL41 Wielkopolskie
PL42 Zachodniopomorskie
PL43 Lubuskie
PL51 Dolnośląskie
PL52 Opolskie
PL61 Kujawsko-Pomorskie
PL62 Warmińsko-Mazurskie
PL63 Pomorskie

SK – Slovakia

SK01 Bratislavský kraj
SK02 Západné Slovensko
SK03 Stredné Slovensko
SK04 Východné Slovensko

Member States of the European Union

AT – Austria
BE – Belgium
CZ – Czech Republic
DE – Germany
DK – Denmark
EL – Greece
ES – Spain
FI – Finland
FR – France
HR – Croatia
HU – Hungary
IE – Ireland
IT – Italy
NL – Netherlands
PL – Poland
PT – Portugal
RO – Romania
SE – Sweden
SI – Slovenia
SK – Slovakia
UK – United Kingdom