__Regionalization in European Economic Area__

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DIVERGENCE AND CONVERGENCE IN THE REGIONAL DEVELOPMENT IN SLOVAKIA

Abstract

The concept and trends of regional development in Slovakia are analyzed in the article. Based on the analysis of data on key macro- and microeconomic, environmental and socio-demoFigureic indicators, differences within regions of Slovakia are singled out. The article describes the evolutionary features of regional development policy, its institutional framework and implementation mechanisms in the country. The call for action to ensure higher levels of financial autonomy on regional level is based on analysis of financial autonomy of regional units. The significant regional disparities within regions are still actual, despite considerable efforts done within cohesion policy.

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The Slovak Republic came into being on 1 January 1993, following the dissolution of the Czechoslovak federation, which split into the Czech Republic and Slovakia. Since the establishment of the independent republic, Slovakia has mastered much of the difficult transition from a centrally planned economy to a modern market economy. The economic transformation the country positioned it well for European Union accession. On 1 May 2004, Slovakia joined the European Union, and in November 2006 entered the Exchange Rate Mechanism, with joining the European Monetary Union in January 2009.

Basic statistical data:

State organisation: republic

Political system: parliamentary democracy

Constitutional system:

- constitutional and legislative power – National Council of the Slovak Republic

- executive power – president of the Slovak Republic and government of the SR

- judiciary power – constitutional court a courts

Area: 49 034 km^2

Population: 5 421 349 (December 31, 2014)

Population density: 110/km^2

Slovakia is a parliamentary representative democratic republic governed under the constitution of 1992. The constitution was amended in September

1998 to allow direct election of the president and again in February 2001 due to EU admission requirements. Legislative power is vested in the unicameral parliament, the National Council of the Slovak Republic. Parliament occupies a central place in institutional arrangements and has a high degree of independence from the other powers. The Parliaments' autonomy is almost absolute if the only limitation is the obligation to comply with the Constitution (Delcamp 2008). The president is the head of state and the formal head of the executive, though with very limited powers.

Slovakia is divided into eight regions and 2,890 municipalities (as at 31 December 2014). Within these there are 138 towns and cities where 55 per cent of the population lives. The vast majority of municipalities is very small and is based on village communities. Over two-thirds have a population of fewer than 1,000. The municipalities and regions are endowed with rule-making power. Every level (region and municipality) has its own elected officials, defined responsibilities, and tasks.

1. Regional development
in the system of national economy

Nonetheless, there are sharp regional differences across Slovak regions. The eastern regions have a much higher incidence of poverty, as economic activity is heavily concentrated in the west, particularly around the capital, Bratislava. Regional disparities are not only substantial, but they also tend to be persistent. Regional disparities have remained basically unchanged over a period of more than 20 years.

## 1.1. Investigation of regional disparities
in Slovakia

In general, Slovak regions are marked by previous political and economic system which was focused on eastern markets. Slovakia was industrial country and these path-dependent tendencies still remains in some regional economies also after year 1989. In this part we focused on regional disparities in many socio-economics and demoFigureic indicators on NUTS III level. To investigate regional disparities measured in different ways the coefficients of variation were used together with evolution of indicators. All data are from Slovak statistical office. Time series vary; we investigate regional disparities with and without most developed Bratislava region due to our prediction of strong influence of this region on regional disparities. We focused on macroeconomic, microeconomic, environmental and social disparities.

1.2. Macroeconomic indicators

Bratislava region dominates in GDP per capita in whole period of years 1995–2013; productivity of Slovak regions is still growing but in other regions than Bratislava region remains quite constant from outbreak of economics crisis in 2008. The creation of gross fix capital (GFC) is two times higher in Bratislava region and it is growing much faster in comparison with other regions in which are reversal tendencies from starting of financial crisis in 2008. Gross added value has similar trend like evolution of GDP pc and is highest in Bratislava region due to centrals of companies doing its business in all country, location of high-tech companies and the same amount of R&D expenditures as have the rest of NUTS III regions together. Unemployment rate (UR) is lower in western regions, which are close to Bratislava region, Vienna region and Budapest region. Long term unemployment (L-TU) is problem mainly in eastern and central regions where is at least five times higher than in Bratislava region but this does not count for unemployed of graduates (UG) where gaps vary.
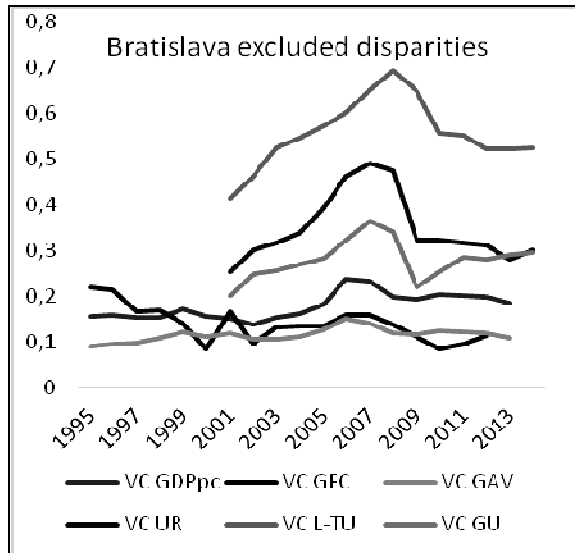
Figure 1

Regional disparities by macroeconomic indicators 1995–2013
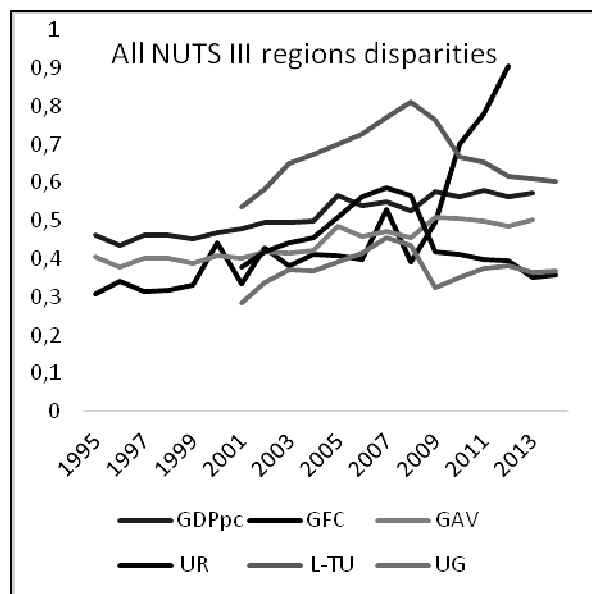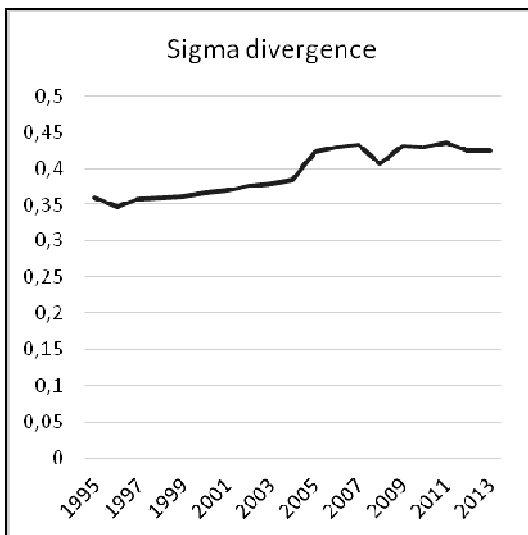

Source: own workmanship.

Figure 2

Regional disparities by macroeconomic indicators 1995–2013
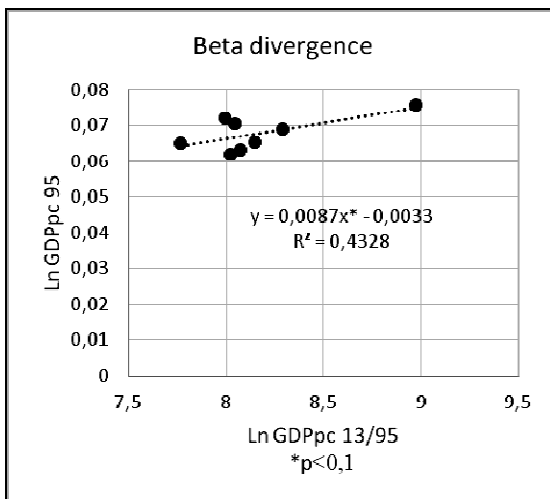

Source: own workmanship.

Pictures above illustrates regional disparities in mentioned six macroeconomics indicators. Left are all 8 NUTS III regions included; right Bratislava region is excluded. In both scenarios the highest discrepancies are in long term unemployed and this indicator is growing from west to east Slovak regions. The highest disproportion was caused by Bratislava region in indicator gross fixed capital in which disparities increased more than twice after outbreak of financial crisis, however in case of rest seven regions disparities decreases. This could by caused by ownership of capital and overall capital development concentrated in Bratislava region which is the only metropolitan region in Slovakia according to classification of OECD. The rank of regional disparities is different in all eight regions where the lowest disparities were in unemployment of graduates in comparison to case where Bratislava region was excluded. In this case the lowest disparities were in gross added value and overall decrease of disparity level of gross added value was from 10 to 30% when Bratislava region was excluded.

Figure 3

Sigma and Beta Diverence among all NUTS III
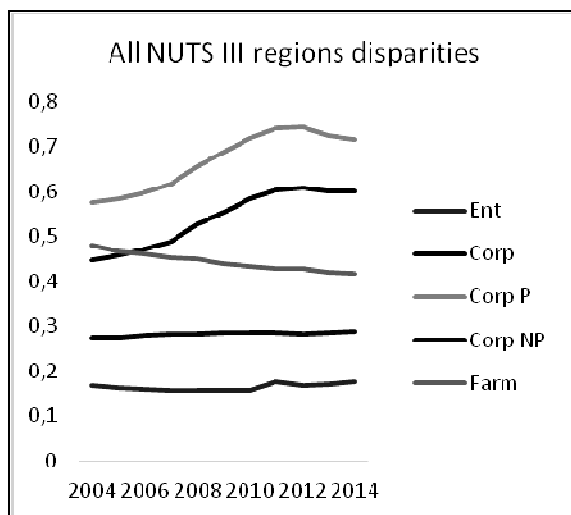

Source: own workmanship.

Figure 4

Sigma and Beta Diverence among all NUTS III
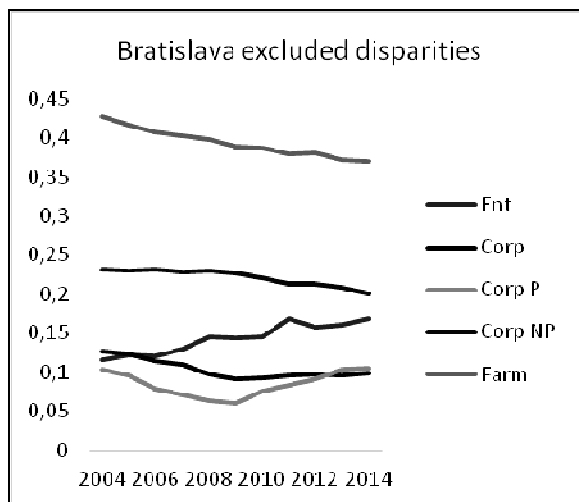

Source: own workmanship.

Figure 5

Regional disparities by microeconomic indicators

Source: own workmanship.

Figure 6

Regional disparities by microeconomic indicators

Source: own workmanship.

We investigate trend of regional disparities at NUTS III level using Beta and Sigma convergence model by Barro, Sala-i-Martin (2004). Both models indicated divergence tendencies among all NUTS III regions in years 1995–2013 using GDP per capita as main indicator. The annual speed of divergence among regions was 0,95% so regional disparities grew each year in this period of time at almost 1%.

1.3. Microeconomic indicators

We selected five microeconomics indicators: number of entrepreneurs (Ent), number of corporations (Corp), number of profitable corporations (Corp P), number of non-profitable corporations (Corp NP), and number of farmers (Farm).

The lowest disparities among all eight regions are in number of entrepreneurs and this indicator was impacted by crisis only very slightly. With exception of number of farmers all other investigated disparities increased after year 2008. The most entrepreneurs stopped their business after outbreak of financial crisis in four western regions and in eastern region Prešov; up to year 2014 almost 300 farmers stopped their business in typical agricultural region Nitra after year 2008 but other regions had slower decrease of farmers and in eastern region Prešov almost 200 farmers started on the market, that is why only disparities among farmers decreased in this period of time.

When we look at the same indicators without Bratislava region firstly we can see overall decrease in level of disparities. Secondly we can see that disparities in profitable corporation are very low in comparison to case all 8 regions there this indicator showed the highest level of microeconomic disparities. The highest level of disparities was in number of farmers due to fact that Bratislava and Trenčín region are not agricultural oriented. We can see that in this case microeconomic disparities are almost constant in comparison to macroeconomic ones. One from the reasons of this can be high openness of Slovak economy which from regional point of view seems to be more sensitive on macro level.


1.4 Environmental indicators

We focused on stiff emissions (SEm), CO emissions (CO), municipal waste in tons (MW), municipal waste per capita (MWpc) and separated municipal waste (Mw sep) and electric power consumption.

Picture illustrates pollution in form of stiff emissions in tons. Till 2007 the higher polluter was eastern region Košice strong focused on steel industry. The lowest stiff emissions polluters are western regions rich focused on automotive industry, IT sector, services or agriculture. In central and eastern regions we can find heavy industrial companies but level of pollution remains constant. Košice region rapidly decrease level of pollution and from 2007 this region is at the same pollution level as other industrial regions – Banská Bystrica and Prešov.
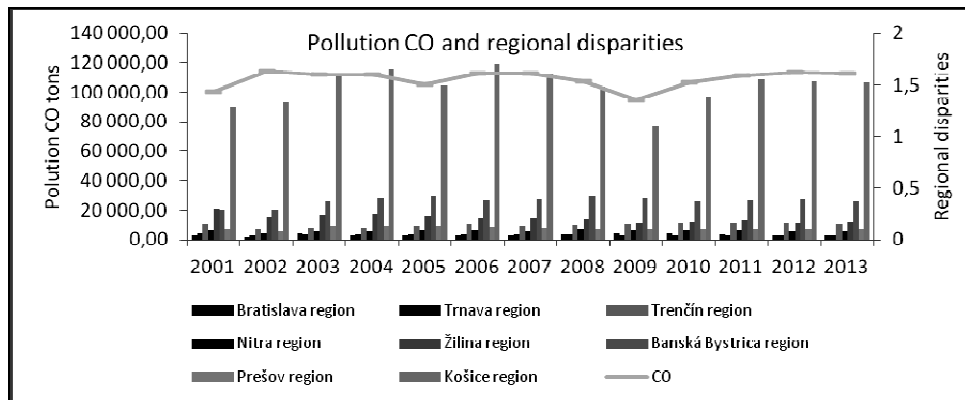
Figure 7

Stiff emissions in Slovak regions
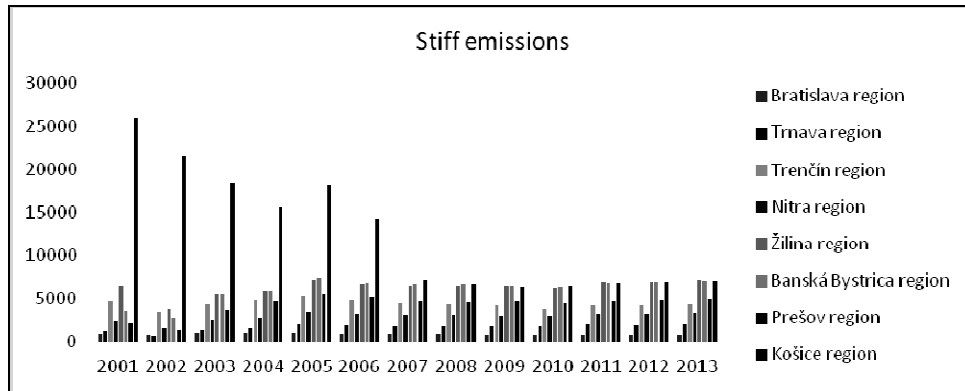
Source: own workmanship.

Figure 8

Pollution CO in Slovak regions

Source: own workmanship.

Pollution measured by CO in tons is highest in Košice region but in comparison with stiff emissions the reduction did not happen and unfavorable condition still remains. Disparities among regions are very high due to influence of Košice region and Banská Bystrica region. The lowest CO pollution is in longterm point of view in western regions, Bratislava and Trnava. Disparities in two investigated environmental indicators belong to the highest level of disparities among Slovak regions at all. This is caused by different structure of regional economies when in all three mentioned regions are located heavy polluters (steel and other forms of heavy industries).

Figure 9

Electric power consumption in Slovak regions
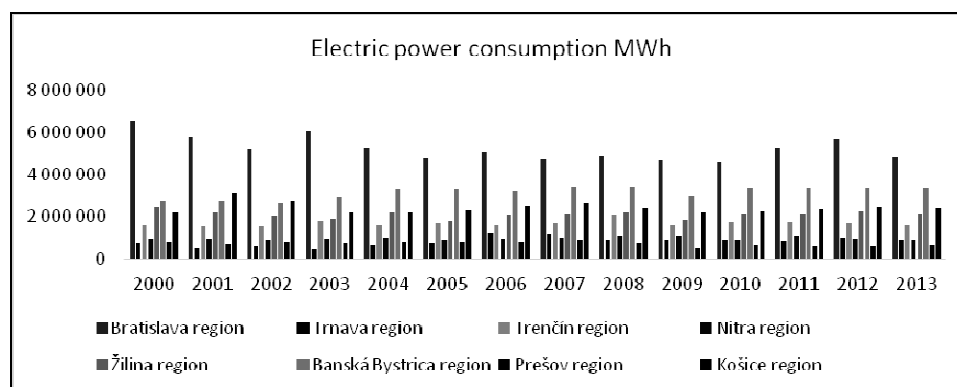
Source: own workmanship.

Electric power consumption is highest in economically key region Bratislava while in other regions it seems to have almost constant level. Disparities depend on economic sectors, its energy severity and used technologies. From this point of view is interesting western region Trnava which electric power consumption is low and unemployment rate is second lowest; low electric consumption could be caused by structure of economy which lacks intensive energy consumers and heavy polluters.

Picture illustrates environmental disparities concerning production of municipal waste among all 8 regions. However disparities in municipal waste are almost constant and not so high the total amount of municipal waste in this period of time is still in average growing – total amount of municipal waste in-

creased form year 2002 to 2014 at 20,63%, municipal waste per capita increased form year 2002 to 2014 at 19,82% – this trend does not follow sustainable direction. On the other hand the amount of separated municipal waste increases 4 times in average in all regions so this enables recycling in average approximately 9,5% of overall amount of municipal waste in Slovak regions. Western regions produce at about 25% more municipal waste in comparison to eastern counterparts what could be as a mark of higher welfare of population in western regions.

Figure 10

Slovak regions municipal waste disparities
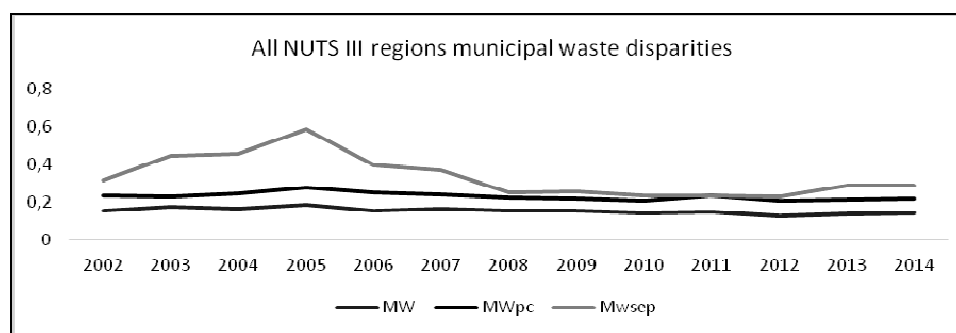
Source: own workmanship.

1.5. Socio-demoFigureic disparities

Socio-demoFigureic disparities are closely linked to overall quality of life in regions. From many indicators we decided to illustrate this issue on poverty indicators, property revenues and building of new flats. The risk of poverty level culminated in year 2011. Eastern regions suffer from lack of new job opportunities reflected in worsen social conditions as have inhabitants in western regions as well as impact of crisis.

Property revenues start to growth in 2004 in all regions but in 2009 property revenues start to be more concentrated in Bratislava region and in other regions this indicator has fallen down so overall property revenue disparities started to grow very rapidly. In general this could be caused by better economic resilience of business sector during economic crisis.

Figure 11

Risk of poverty % in Slovak regions
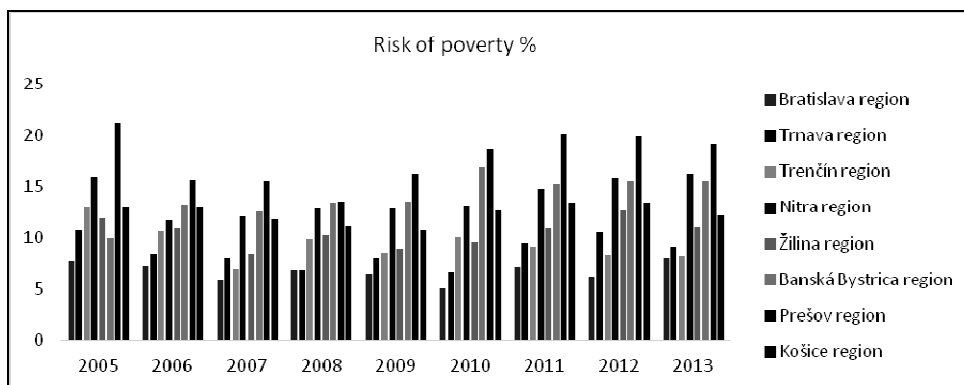
Source: own workmanship.

Figure 12

People beyond the level of poverty in Slovak regions
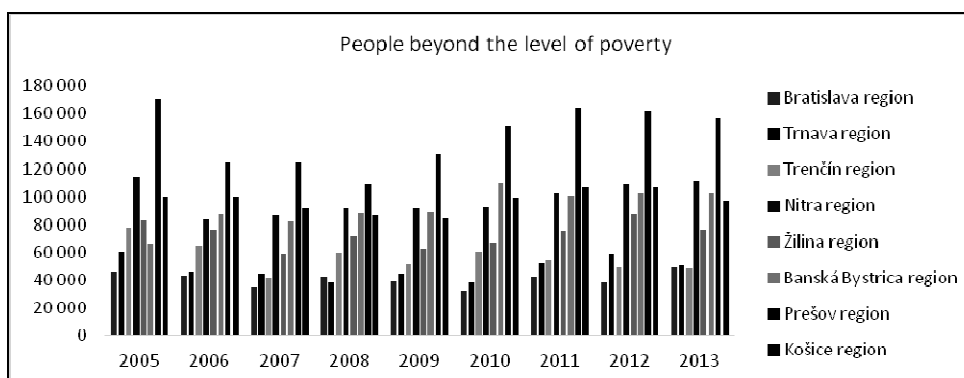
Source: own workmanship.

Figure 13

Property revenues in Slovak regions

Source: own workmanship.

Figure 14

Total number of new flats in Slovak regions

Source: own workmanship.

Western regions (especially Bratislava and Trnava region) lure young population from other regions due to many job opportunities. Building of new flats reflect this situation. After outbreak of crisis in 2008 the «developer boom» started to fall down in Bratislava region with one year delay but not in other regions. This could be caused by attractiveness of Bratislava region for investors to exaluate their capital.
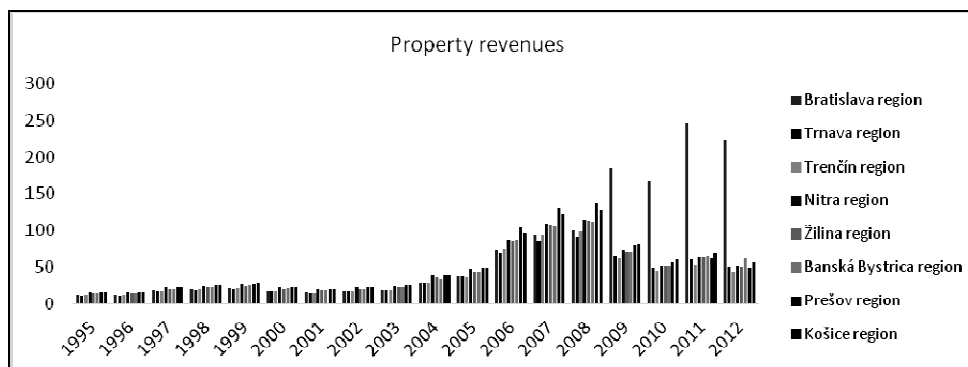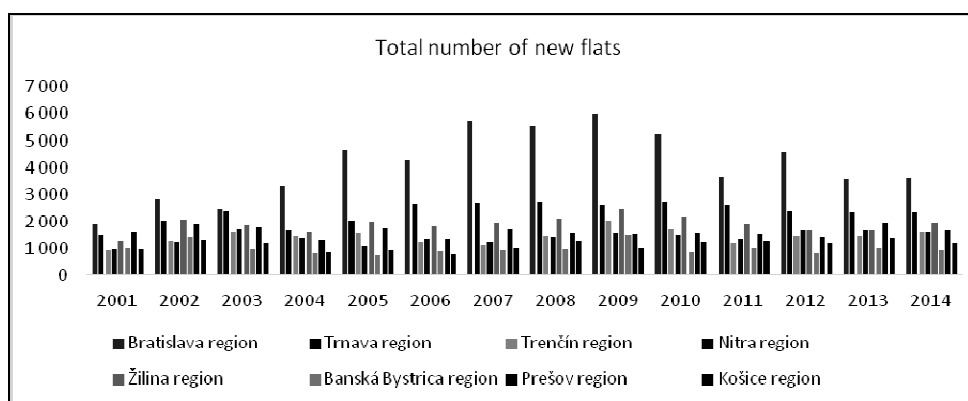
1.6. Conclusions of regional disparities among Slovak regions

Regional disparities at NUTS III level are influenced by Bratislava region which usually makes them stronger. When we look at chosen regional indicators when Bratislava region is excluded obviously two scenarios occur. Firstly, disparities reach lower level. Secondly, trajectory more developed west and less developed east still remains. Economic crisis has influenced the evolution of regional disparities from case to case in both directions. Social disparities in case of risk of poverty were negatively influenced by crisis and this still remains as serious issue for representatives of municipal, regional and national government. Environmental regional disparities seem to be the highest from all investigated indicators.

2. Evolution of territorial development in Slovakia

In terms of territorial administration, the Slovak Republic is divided into 8 regions (corresponding to the EU's NUTS 3 level) and 2,890 municipalities (as at Dec. 31, 2014) The public administration is organised on three levels: state – region – municipality. Every level has its own elected officials, distributed responsibilities and liabilities. Slovak public administration is of dual nature, with relative separate lines of local government (local and regional) and state administration (regional general state administration, specialised state administration). There is a clear-cut distinction at the regional and local level between responsibilities of the local government and those of state administration.

2.1. Legal and fiscal framework of regional government

The present system of local government in Slovakia was established in 1990, when new legislation created a system of primary–level elected municipal bodies with legal identities and defined rights. The municipalities as de facto self-governing territorial units began functioning after local elections in November 1990.

Until 2002 there was a one-tier system of local government comprising more than 2,800 municipalities of varying sizes with the vast majority of very small municipalities. Futher development has been characterised by strengthening of local government and reducing the role of state administration. Within the processes of public administration reform, more powers are transferring to local government since 2002. Main responsibilities and functions of local government include administration of communal property; preparation and adoption of local budget and final account; local taxes administration; supervising of economic activities (including adoption of binding decisions on investment activities and starting of entrepreneurial activities); construction and maintenance of local roads, public spaces, cemetery, and other municipal facilities; organisation of public services provision (waste disposal, public lighting, water distribution, sewage, public transport etc.) housing, pre-school and school facilities, social facilities, health-care facilities, some hospitals, culture, attestation of deeds, some offences, local police, own investment and entrepreneurial activities; adoption of territorial planning documents, as well as development documents concerning particular spheres of local life; establishment and control of own budgetary and contributory organisation and other legal entities.

The regional government was established as at January 1, 2002. The creation of a regional tier of self government should have addressed the problem of large proportion of small municipalities with limited professional and financial capacity capabilities to manage some public services as well as the problem of services where economies of scale and scope exists and services with catchment area exceeding municipal jurisdictions. In 2001, the National Council approved a set of legislation establishing the second tier of self-government (regions) and devolving further responsibilities to the municipalities. The Act on the self-government of higher territorial units (which is the technical name given to the regions) set up a second tier of local government – eight regions corresponding to the borders of the administrative regions. After the regional elections in December 2001, the governing bodies of the regions took up their functions.

2.2. Organisation of Regional Government

Governments in the eight Slovak regions were given powers over regional roads, territorial planning, regional development, secondary schools, hospitals, some social service facilities (retirements homes, social services for children, crises centre, orphanages, etc.), cultural facilities (galleries, museums, theatres, some libraries, etc.), participation at civil protection, licences for pharmacies and private physicians. The basic statistical data are provided in the next table 1.

The bodies of regional government are composed of directly elected authorities

- the assembly of the higher territorial unit,
- the president of the higher territorial unit.

Table 1

Self-governing regions in Slovakia (2014)

Higher territorial unit	Area (km^2)	Number of inhabitants	Number of municipalities
Region of Bratislava	2053	625 167	73
Region of Trnava	4148	558 677	251
Region of Trenčín	4501	591 233	276
Region of Nitra	6343	684 922	354
Region of Žilina	6788	690 449	315
Region of Banská Bystrica	9455	655 359	516
Region of Prešov	8993	819 977	665
Region of Košice	6753	795 565	440
Slovak republic	49 034	5 421 349	2890

Source: Statistical Office of Slovak Republic.

The number of regional councillors is set by law in the proportion 12–15 thousands citizens per councillor. The president is the executive authority of the region. He/she performs the management of the regional organization and its resources and is the representative of the region. The president is not a member of regional assembly, but he/she chairs its the meetings.

The regional office is an executive body of a region. The director who is accountable to the president manages the regional office. The structure of regional office is established and the number of employees is approved by the president of the region.

2.3. Electoral Arrangements

Representatives of regional governments (councillors of regional assemblies and regional presidents) are elected in direct, free, and democratic elections, which are open to political party candidates as well as independent candidates. They are elected by the inhabitants permanently residing in the region based on a universal, equal and direct suffrage by secret ballot for a four-year term. Candidates represent a broad spectrum of opinions, and political parties play an important role in elections to local and regional self-governments.

Elections for councillors are held on a majoritarian basis. Although there are party lists, voters can vote for individual candidates. Political parties or their coalitions registered by the Ministry of the Interior submit a list of candidates for

election. Independent candidates may stand for election on their own nomination, supported by a petition signed by voters.

For regional assembly elections, each region is divided into electoral districts. Electors receive separate ballot papers for the election of the president and of the council members. The elections of regional presidents are organized as a two-round model. In the first round, the candidate obtaining more than 50% of the votes is appointed to the office of president. If no candidate has reached this target, a second round is organized, in which the victory goes to the candidate that gets the higher number of valid votes. In each region, the President is elected independently from the regional assembly. In presidential elections, the region is treated as a single electoral district.

Each regional council elects vice presidents among its members. The assembly establishes a mandate and a financial committee; it may also establish other committees. The mandate committee consists of councillors, in the other committees councillors must be half of the committee members. The chair of the committee is a councillor.

The assembly elects the chief auditor. The chief auditor's department conducts internal control.

2.4. Regional System of Finance

New system of financing of the municipalities and higher territorial units (regional government), was prepared taking effect in 2005, the substance of which was to determine revenue collections of the regional government as well as to strengthen the independence and responsibility of local governments in deciding on the use of public funds for efficient sub-national service delivery. At the same time, it should contribute to the local government's revenue stabilization for a longer period.

Regional government are responsible for performing their tasks from their own budgets. For performing the state administration tasks, they do acquire funds from state budget. The only local tax applicable on the regional level was the Motor Vehicle Tax, which is imposed on vehicles used for commercial purposes only. Since 2015 the legislation has unified tax rates for different types of vehicles throughout the territory of Slovakia and the tax the tax no more goes to the budgets of Higher Territorial Units, instead, directly to the state budget.

The principle sources of revenue available to regional governments are shares of centrally collected taxes, non-tax revenue as well as grants and transfers from the central government.

Intergovernmental grants and transfers remain an important source of finance for sub-national provision of public goods and services.

Non-tax revenue includes operating surpluses of public enterprises controlled by sub-national governments, fees and charges, sales, fines, property income, and capital revenue

The principal intergovernmental transfer is the share of personal income tax, which is collected by the centre. The legislation stipulates the share of the aggregated personal income tax that is re-distributed from the state to respectively the regional government (29.2%) and the municipalities (68.5%). The remaining 2.3 per cent is kept by the state. Formulas used for calculating the tax re-distribution to a certain region/municipalities are driven by population and population-related factors such as number of inhabitants, age structure, size, population density, etc. Revenue sharing generally takes the place of the general grants to local authorities, i.e. no conditions are imposed on the use of shared taxes. Tax sharing of the personal income tax has been taken for the decisive equalisation component in intergovernmental fiscal relations. It is essential to eliminate vertical fiscal gap but it is also supposed to include a horizontal equalisation effect, which is deemed to set off the expenditure inequalities.

3. Financial mechanism
for the regions of Slovakia

The systems of public budgets are in different countries differently structured, sources of public revenue and principles of their formation are different, and the purpose of public expenditure and the principles of its allocation may vary. It depends not only on economic, but also on historical, cultural as well as on geoFigureical and political factors. Diversity in the financial systems of the countries is also clear from the fact that it is up to decision-makers of each state which tasks or public services are provided centrally and which locally and regionally.

Since the second half of the 20th century the decentralization tendencies have dominated (Bird, Vaillancourt, 1999). Due to the decentralization processes the financial system of municipalities in Slovakia has considerably increased in importance. The negative effect of these processes is the deepening fiscal disparities among municipalities. «The more decentralized the tax system is the greater is the need for equalization transfers. Most transition economies have equalization components in their grant programs to sub-national governments. Latvia, Lithuania, Poland, Romania and Russia have adopted transfer formulae that explicitly incorporate either fiscal capacity and/or expenditure need equalization concerns.» (Shah, 2004). Slovakia in case of municipalities, has adopted transfer formulae that incorporate expenditure needs. The formula is incorporated in the allocation mechanisms of shared tax. Revenue from shared tax – tax

on personal income, which is in Slovakia, only shared tax from 2005, is very important source of municipal revenues. Slovak legislation considers revenue from shared tax as the own revenue source of municipalities, but in case of tax competence it is not really own source. Shared tax in Slovakia also functions as equalization transfer. We took into account this fact when we calculated financial autonomy of municipalities.

In theory of public finance we can find the principles relating to the financial system of municipality which were summarized and generalized by Peková (Peková, 2004). Important principle is certain degree of financial autonomy of the municipality. Fiscal decentralization requires that municipalities must control their «own» sources of revenue in order to reach enough financial autonomy and accountability to their local tax payers. In Europe the importance of financial autonomy is clearly expressed in the European Charter of Local Self-government of 1985.

The strongest possible financial autonomy would mean that municipalities have no centrally decided (by law) obligatory tasks, and that they could themselves decide what kind of taxes, fees and charges they collect. If their own incomes were to be supplemented with grants from central government that are general purpose grants with no strings attached to them, the financial autonomy would still be very strong, while the system of financing local governments would remain consistent (Oulasvirta, Turala, 2009). Local government systems can have only relative autonomy, because central government legislation and steering always affects local governments to some extent (Batley, Stoker, 1991).

In Slovakia, second phase of fiscal decentralization was associated with changes to the tax system in municipalities and self-governing regions. Those changes concerning the competences transfer have logically caused the overall growth in revenues of municipalities. Since 2005 the importance of revenue that municipalities receive from local taxes in its jurisdiction has increased and the financial autonomy of municipalities has increased as well (mainly in case when we consider shared tax as own source of municipality). From 2002 to 2004 were new competencies of municipalities financed mainly through decentralization transfers from the state budget.

Act No. 582/2004 Coll. on local taxes and local charges for municipal and minor construction waste as amended, recognizes property tax, dog tax, tax for the use of public areas, accommodation tax, tax for vending machines, tax for non-winning slot machines, tax on entry and parking of vehicles in the historic part of town, nuclear facility tax and fee for municipal waste and minor construction waste. Except of the fee mentioned as last all of them have the optional nature. It is up to the municipality, whether it introduces the tax or not.

According to Slovak law, own sources of financing of municipalities are the share of the tax on personal income (shared tax), revenue from local taxes and fees, proceeds from disposal and property of municipal property and budgetary

organizations or municipal companies, penalties for violation of financial discipline imposed by the municipality and other non-tax incomes – administrative fees. Foreign sources of revenue are subsidies from the state budget, subsidies from the self-governing regions or other municipality, subsidies from the European Union. The use of debt financing is limited by law. Slovak municipal financing model is based on the multisource principle (Poliak, 2013). Authorities of municipalities are responsible for the providing and financing of original and transferred competencies. Transferred competencies (e.g. primary education) are financed through purpose subsidies which reduce the degree of financial autonomy of municipalities.

The economic performance of regions is determined by various factors depending on the economic environment and the economic and political situation in the country. One important factor not only within the EU is economic crisis. Considering the openness and interconnectedness of national economies the crisis is reflected not only in the decline in economic performance of regions but also in a lower level of own revenue on total income of municipalities as well as on the amount of covering of current expenditures and development activities by its own incomes, i.e. financial autonomy. Therefore, it is appropriate to investigate the relationship between financial autonomy and economic performance at regional level.

3.1. Financial autonomy of municipalities
in relation to economic performance
in regions of the Slovak Republic

The aim of this subchapter is to assess and compare the evolution of two indicators of financial autonomy, to measure regional disparities in financial autonomy and GDP per capita and then investigate the existence of the relation between the financial autonomy of municipalities and the GDP per capita of NUTS 3 regions[1] in Slovakia in the time periods 2005–2008 and 2009–2011.

The time period of data analyzed was divided into two periods. The first period is from 2005 to 2008, when the economy grew in the regions of Slovakia. The second period is from 2009 to 2012, which is when the economic crisis mostly influenced the municipalities. Data on GDP per capita in NUTS 3 regions are accessible by the Statistical Office of the Slovak Republic [12] only up to 2011. Because of significant changes in the system of financing of municipalities

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[1] The NUTS classification in Slovakia : NUTS I – Slovak Republic; NUTS II – 4 regions: Bratislava Region, Western Slovakia, Central Slovakia East Slovakia, NUTS 3 – 8 self-government regions: Trnava, Trenčín, Nitra, Žilina, Banská Bystrica, Prešov and Košice Region; NUTS IV – 79 districts; NUTS V – 2927 municipalities (in 2012) including 22 city zones, 138 cities and 2752 rural municipalities.

as the beginning of first period was chosen the year 2005. To eliminate the trend incorporated in the variables and thus achieve temporal invariance of the data, the panel data were transformed to the cross-sectional data. For each parameter we chose conversion of values for each region to their average value of Slovak Republic in the given year.

The strength of association between FA_2 and GDP pc was investigated by using correlation analysis. A direct linear relationship was assumed. The significance of the correlation coefficients was tested by one-tailed t-test. The null hypothesis assumes no relationship, ergo null linear correlation. If the null hypothesis is rejected, it will confirm the relation between GDP pc and FA_2. Quantification of this impact was done by estimating two simple linear regression models. The first model expresses the additive relationship between variables and the second model assumes a multiplicative relationship. The validity of these two models was examined and evaluated using the proportion of explained variability by models.

To measure regional disparities in FA_2 and GDP pc in Slovakia in the period 2005-2012, we used the coefficient of variation according to (Hindls, Hronová, Seger, 2003) which is calculated as the standard deviation divided by the arithmetic mean of the indicator FA_2 or GDP pc. The coefficient of variation is a fundamental indicator of variability which additionally takes into account the average value of the set of analyzed data. This latter feature will help us to better compare the evolution of variables against each other.

We investigate financial autonomy of municipalities using the following relationships:

$$FA_1 = (LT+ST+ CNTR+OCI) / TR \qquad (1)$$

where: FA_1 – financial autonomy in broad sense, which takes into account the own revenues in the broad sense, LT – local taxes, ST – shared tax – in Slovakia personal income tax remitted to municipalities, $CNTR$ – current non-tax revenue, OCI – own capital income, TR – total revenue.

$$FA_2 = (LT+ CNTR) / TR \qquad (2)$$

where: FA_2 – financial autonomy in the strict sense, which takes into account only the own revenues the amount of which is directly affected by the decisions taken of municipalities, LT – local taxes, $CNTR$ – current non-tax revenue, TR – total revenue.

The degree of financial autonomy was quantified based on aggregated data for all municipalities in NUTS 3 regions in the period 2005-2012 obtained from DataCentrum which centralizes data from the financial statements of municipalities in Slovakia.

To quantify the financial autonomy of municipalities we used commonly used indicator – the rate of financial self-sufficiency (the ratio of own revenue to total revenue of municipalities). The larger (smaller) is the share of own revenues

on total government revenue authorities, the municipality is more (less) financially autonomous (Horváthová, 2009). In broad sense, shares on central taxes, set by the state, are considered for own revenues as well. This subchapter we based on the definition of own revenues in broad sense with respecting current legislation (Law no. 583/2004 Coll.) within which revenues from shared tax are explicitly included in municipality own revenues. In addition to own revenues, we include own capital revenues, calculated according to equation (1).

Subsequently, we used the definition of own revenues in strict sense where we used equation (2) for calculations. In strict sense only those revenues the amount of which is directly affected by the municipality decisions are considered to be own revenues – for example based on tax jurisdiction and power to set the fees for the municipal services (Jílek, 2008). To own revenue by equation (2) we do not include own capital income of municipalities which are irregular and lump-summed (for example sales of assets from local authorities). Revenues from sale of property which are one-off and irregular are not used to finance current expenditures such as salaries, operating costs, repairs, etc.

3.2. Assesment and evolution
## of financial autonomy in Slovak regions

Chart 15 illustrates the FA_1 and FA_2 in terms of municipality in the NUTS 3 regions in Slovakia; timeline is divided into the period before and after the outbreak of the economic crisis. In the upper part of chart 1 we see the development of FA_1 which indicates the impact of the income tax on the FA_1. Since the outbreak of the economic crisis there has been a significant drop of FA_1.

The evolution of the FA_1 in the long term reached the highest level in the Bratislava region. Conversely, the worst level of FA_1 achieved self-government in the Prešov region, which is located in the east of the country and there is also the highest unemployment rate. Approximately one third of nationwide GDP is produced in the Bratislava region where is also the lowest unemployment rate in the long term.

Shared tax revenue contributed on average 34 % of the total revenue of municipalities in the Slovak Republic in the period 2005-2012. Decrease of the shared tax revenue, as a result of the economic crisis caused a significant decrease in FA_1 which is especially marked in years 2009 and 2010. From 2005 to 2011 Slovak municipalities were receiving 70.3 % share of the income tax collected by the state. The amount of revenue from personal income tax remitted to the municipality was also affected by the legislative change valid from 1st January 2012. This change reduced the share of personal income tax for municipalities from 70.3 % to 65.4 %. Due to the higher total return of shared tax in 2012 compared to 2011 the legislative change did not have a negative impact on the development of the financial autonomy FA_1 of municipalities.

Figure 15

FA_1 and FA_2 in the time period 2005–2012
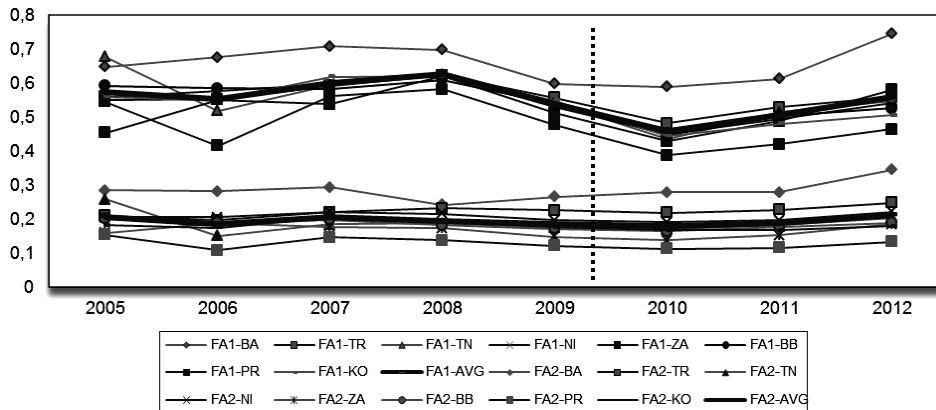
Source: own workmanship.

Legend: BA – Bratislava region, TR – Trnava region, TN – Trenčín region, NI – Nitra region, ZA – Žilina region, BB – Banská Bystrica region, PR – Prešov region, KO – Košice region; Bolt – average.

From 2005 to 2012 FA_2 was more stable. The highest values of FA_2 were in the Bratislava region. The above-average values reached municipalities in Trenčín and Nitra region. On the contrary, the lowest values of FA_2 reached municipality in the Prešov region. We consider FA_2 as more appropriate to determine the degree of financial autonomy in the Slovak Republic because municipalities do not have competence to change tax rate or other aspects dealing with the personal income tax.

The economic crisis after 2008 was impacting on the increasing disparities in FA_2 of municipalities in the NUTS 3 regions of Slovakia. Above-average values of FA_2 (Chart 1) were dominated in western regions like Bratislava and Trnava region (oriented mainly to the automotive industry). In these regions were also the highest values of GDP pc (according to The Statistical Office of the Slovak Republic data). Degree of FA_2 also affects the economic prosperity of the best performing region in Slovakia, the Bratislava region. This metropolitan area also affects the economic prosperity of geoFigureically closer regions of Slovakia. These are interesting to investors in terms of the proximity not only to the capital of the Slovak Republic but also to capital of Hungary, Austria and the Czech Republic. Ergo, western regions of Slovakia dispose of good geoFigureical location in respect of the Central-East European area.

The coefficient of variation which we used to measure the level of regional disparities points to the reduction of disparities in FA_2 together with GDP pc in the period before the economic crisis. After the outbreak of the crisis the differences in FA_2 and GDP pc in NUTS 3 regions in Slovakia enlarged. Chart 2 illustrates similar trend in the evolution of regional disparities in FA_2 and GDP pc but the differences in GDP pc are much larger than in the financial autonomy. Therefore, we aimed to investigate the existence of relation between the FA_2 and GDP pc.

Figure 16

Regional disparities in FA_2 and GDP pc – NUTS 3 level in Slovakia
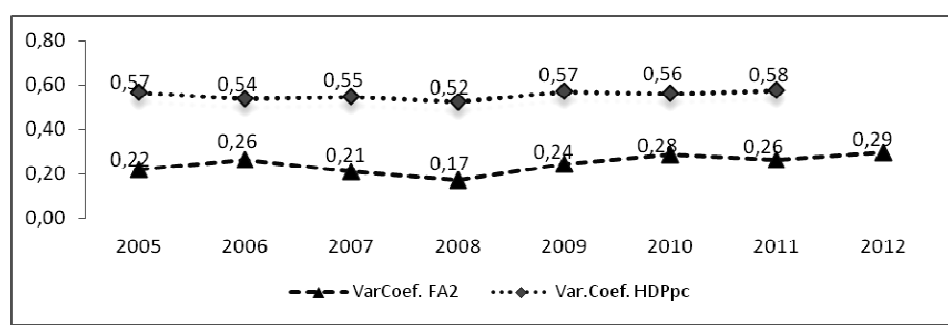
Source: own workmanship.

In our previous work (Bolcárová, Košta, Flaška, 2013) we have revealed a relationship between indicators of financial capacity and selected indicators of economic performance in 2008-2010. Based on the results of this work we assume that the rate of FA_2 of municipalities in the NUTS 3 regions depends on the level of GDP per capita, the development of which is also reflected in the unemployment and employment rate in the NUTS 3 regions in Slovakia.

By displaying the data points of the level of GDP pc and FA_2, the Figure 17 shows the position of individual regions in the two investigated periods. Bratislava region (top right) clearly reached the highest values of the both monitoring indicators and so naturally determines the direction of relationship however the relationship between indicators can also be observed in the rest of regions.

Consequently we therefore quantified the degree of dependence between FA_2 and GDP per capita in NUTS 3 regions. The argument for a positive relationship between FA_2 and GDP pc for municipalities in the NUTS 3 regions is in ob-

taining more funds in the form of own revenues of municipalities where are the prospering and developing businesses. This is helping to reduce the unemployment and it also allows municipalities to obtain higher tax revenues (municipalities can increase the rates of local taxes) as well as higher non-tax revenues (for example income from rental property or business activities of municipalities). This assumption applies to all NUTS 3 regions in Slovakia. In Table 2 FA_2 strongly positively correlates with GDP per capita in the NUTS 3 regions during the period 2005–2008 with the strengthened of this relation in period 2009–2011 what the Figure 17 illustrates as well.

Figure 17

Relation of FA_2 to GDP pc before and after outbreak of economic crisis
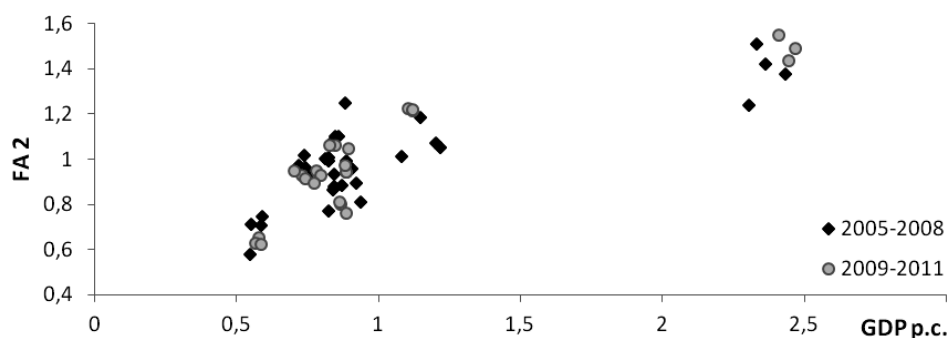
Source: own workmanship.

Table 3

Results of regression analyses

Time period	2005–2008		2009-2011	
Coefficients	FA_2	ln (FA_2)	FA_2	ln (FA_2)
constant	0,6733***	0,0042***	0,5988***	0,0053***
GDP pc	0,3163***	–	0,389***	–
ln (GDP pc)	–	0,4237***	–	0,5266***
R	0,8127***	0,8143***	0,8697***	0,8719***
R^2	0,6606	0,663	0,7563	0,7602
n	32	32	24	24

*** $p < 0,001$

Source: own workmanship.

At a significance level of 0.1%, we cannot reject the significance of parameters and neither the models as a whole. The proportion of variation explained is almost identical in both models. A higher proportion of variation explained in the second reporting period indicates that in this relationship between the variables there were more observational units involved. It means that after the outbreak of the economic crisis the relationship between GDP pc and FA_2 has highlighted. Using the indicator of economic performance (GDP pc) 66.3 % of the variation of FA_2 is explained by multiplicative model in the period before the economic crisis. There 1% higher value of the indicator of GDP pc in the region means a higher value of the indicator FA_2 in the region by about 0.424 percent in the first period and about 0.527 percent in second period (76.0 % of variation explained). The additive model indicates that the increase in GDP pc by one unit implies a higher value of the indicator of FA_2 for 0.316 units in the period before the economic crisis and 0.389 units in the period 2009-2011.

3.3. Conclusions
of financial autonomy discrepancies

Results of the analysis indicate that larger produced value of GDP per capita in NUTS 3 regions in the Slovak Republic helps to growth financial autonomy FA_2 of municipalities in NUTS 3 regions. This suggests that representatives of municipalities in the regions in Slovakia – which are economically more powerful and have more and better potential and conditions for business – have better conditions to increase non-tax revenue from business and other activities (e.g. rental) thanks to higher densification of its areas with economic activities.

To check this assumption it would be appropriate in the future to determine which factors arising from the activities of self-governing regions and municipalities affect the most components of own revenues in relation to GDP per capita of the region and other macroeconomic indicators (for example added value in relation to the economic structure of the region). Also how reflect the quality of the business environment, business supporting activities and the quality of municipal/regional management on the coverage of current expenditures through own revenues excluded shared taxes.

4. Tendencies
of regional development in Slovakia

Chapter X. 4 defines the specfics of territorial development before and after the implementation of various supporting projects from the programs and funds of the European Union. The observed period was years 2006 and 2013. The aim of the research was to identify the key features of realised regional policy of EU in the conditions of Slovak regions, its impact on the regional development in the Slovakia and the development tendencies in the future.

4.1. The regional development
in the Slovak Republic in 2006 and in 2013

The regional development is strongly influenced by the physical and demoFigureic prepositions of regions. During last years, there is a great dominance of the Bratislava Region (capital city, centre of business, administration, good position close to Hungarian and Austrian border) in all economic indicators. The weak level of development is typical for the region of Prešov and Banská Bystrica. The development is possible to monitor during last decade and the differences have been still increasing, even if there are implemented various supporting projects from the programs and funds of the European Union.

The development level in the Slovak regions by regional indicators in 2006 is illustrated in the Table 4.

In the Table 4, we see that in 2006 the economic indicators are at the best level in Bratislava region (unemployment – 2,29 %; average nominal wage – 971,59 Euro; 89,02 % of EU regional average GDP; 62,79 % of Slovak FDI). The underdeveloped region is a region of Prešov (unemployment – 13,68 %; average nominal wage – 530,11 Euro; 27,64 % of EU regional average GDP; 0,96 % of Slovak FDI). The great difference in all indicators is between Bratislava region and the rest of Slovak regions. For instance, the regional GDP in Bratislava region is 21 111,29 Euro in PPS per inhabitant, the average of other 7 regions without Bratislava region is 8514,02, i. e. 35,924% of EU regional average (difference between Bratislava region and other regions – 53,15%). The regional indicators characterise the situation in the Slovakia at the end of 2006, and it was the initial state for the next programming period of the European period 2007 – 2013.

Table 4

Regional indicators in the Slovak Republic in 2006

Territory	Unemployment in %	Average nominal wages	Regional GDP in PPS per inhabitant	Regional GDP as a % of EU regional average	FDI[2] in thousand Euros	FDI as % share
Slovakia	9,4	673,14	10 088,68	42,57	29284029,36	100,00%
Bratislava region	2,29	971,59	21 111,29	89,08	18386927,45	62,79%
Trnava region	5,22	636,92	10 113,70	42,67	3218428,401	10,99%
Trenčín region	5,19	597,26	8 399,04	35,44	1217314,313	4,16%
Nitra region	9,09	575,18	9 093,71	38,37	1176424,816	4,02%
Žilina region	7,03	599,48	8 432,91	35,58	1645263,66	5,62%
Banská Bystrica region	16,12	581,66	7 259,52	30,63	596409,6462	2,04%
Prešov region	13,68	530,11	6 550,33	27,64	282361,3822	0,96%
Košice region	15,18	660,33	9 748,93	41,13	2760899,688	9,43%

Source: Slovak Statistical Office, Slovak National Bank, 2014.

The state of the Slovak regional economies after the last implemented programming period 2007–2013 is described by the indicators in Table 5.

The table 5 shows that the economic situation in the Slovak regions is still diversified. There is possible to observe again the great dominance of Bratislava region. It is followed by Trnava region, Žilina region and Košice region. The critical situation deepened in the regions of Banská Bystrica and Prešov. The difference between the position of Bratislava region and the other Slovak regions has increased twice. The regional GDP in Bratislava region is 43 100 Euro in PPS per inhabitant, the average of other 7 regions without Bratislava region is 14842,86; i.e. 60,53 % of EU regional average (difference between Bratislava region and other regions – 115,47%).

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[2] FDI – foreign direct investments.

Table 5

Regional indicators in the Slovak Republic 2013

	Unemployment in %	Average nominal wages	Regional GDP in PPS per inhabitant	Regional GDP as a % of EU regional average	FDI in thousand Euros	FDI as % share
Slovakia	14,44	805,00	17 900,00	73,00	39641910	100,00%
Bratislava region	5,72	1029,00	43 100,00	176,00	26806640	67,62%
Trnava region	9,43	736	20100	82	2 769 659	6,99%
Trenčín region	10,89	724	15800	65	1 847 027	4,66%
Nitra region	14,08	661	14800	61	1 586 338	4,00%
Žilina region	12,79	726	15800	65	2 635 227	6,65%
Banská Bystrica region	20,81	675,00	13 200,00	54	997493	2,52%
Prešov region	20,66	613,00	10 100,00	41	369024	0,93%
Košice region	19,58	735	14100	58	2 630 501	6,64%

Source: Slovak Statistical Office, Slovak National Bank, 2014.

To make the comparison of these two periods we summarize the differences in the Table 6.

In the Table 6, we compare:

- development of unemployment by the comparison the unemployment in 2013 and in 2006, in all regions we can notice the growth of unemployment from 3,43 % in Bratislava region to 6,98 % in Prešov region. Average growth of unemployment in the Slovak regions was 5,02 %.

- the changes in time at the level of average nominal wages in the Slovak regions we calculate as an index of extensity – 2013/2006 in %, so we identified the growth of all regional wages from 5,91 % in Bratislava region to 21,22 % in Trenčín region. The development of average wages in Bratislava regions is not so significant. However, the average wage in this region was in 2006 and also in 2013 and still is the highest in the Slovak republic.

- the changes in regional GDP in PPS per inhabitant we calculated as a growth in time in %. In all Slovak regions we can see the significant growth of production form 45 % in Košice region to 104 % in Bratislava region. However, the average of the European Union was not achieved in the Slovak regions beside the Bratislava region (in 2006 the regional GDP in PPS per inhabitant in Bratislava region was under the European average). There is a considerable growth of the average regional GDP (but it can be significantly influenced by the development in Bratislava region.

- the changes in foreign direct investments in regions were not so clear as other indicators. In the regions of Trnava, Košice, decreased the volume of FDI, the increase of FDI is reported in regions of Bratislava, Žilina, Trenčín, Banská Bystrica, Nitra and Prešov.

Table 6

Comparison of regional indicators in the Slovak Republic 2006/2013

	Unemployment in % (2013–2006)	Growth of Average nominal wages (2013/2006 x 100)	Growth of Regional GDP in PPS per inhabitant (2013/2006 x 100)	Regional GDP as a % of EU regional average (2013–2006)	Growth/decline of FDI in thousand Euros (2013/2006 x 100)	FDI as % share (2013–2006)
Slovakia	5,04	19,59%	77%	30,43	35%	0,00%
Bratislava region	3,43	5,91%	104%	86,92	46%	4,83%
Trnava region	4,21	15,56%	99%	39,33	-14%	-4,00%
Trenčín region	5,70	21,22%	88%	29,56	52%	0,50%
Nitra region	4,99	14,92%	63%	22,63	35%	-0,02%
Žilina region	5,76	21,10%	87%	29,42	60%	1,03%
Banská Bystrica region	4,69	16,05%	82%	23,37	67%	0,48%
Prešov region	6,98	15,64%	54%	13,36	31%	-0,03%
Košice region	4,40	11,31%	45%	16,87	-5%	-2,79%

Source: Slovak Statistical Office, Slovak National Bank, 2014.

Globally, when we research the regional development of Slovakia in comparison two selected periods, the dominance of the Bratislava was confirmed and strengthened. There was significantly supported also the development in other Slovak regions, however, the difference among Bratislava and the rest of Slovakia is twice higher almost in all indicators after the 7 years period of implementing the European strategic programs and projects. So here opens the question if really the EU help supported in that period to decrease the differences between the region and guide to the balanced territorial development.

In the evaluation of the regional differences should be considered also other factors. In the case of Bratislava region, the situation can be influenced also by other factors as perfect location near to the borders with Austria, Hungary and Czech Republic, technical an information infrastructure in good conditions, qualified human potential, well – developed programs of cross-border cooperation etc. The weak development of East and Middle Slovak regions, especially Banská Bystrica and Prešov, can be caused also by the bad transport infrastructure, the immigration of qualified human resources, and the great share of Roma population or proximity of the Ukraine borders (the East border of the European Union).

That is why we think that the role of European Union in the Slovak Republic mainly in destroying the barriers of further development in the underdeveloped Slovak regions. There should be used primary the European fund

- to build the technical and information infrastructure,

- to motivate the qualified population to stay in their home regions and contribute to the growth of the regional GDP and regional competitiveness;

- to support the formation of regional and local production systems respecting the natural and social prepositions of regions.

These activities should be implemented in cooperation with the national, regional and municipal governments and with the strict control[3] of the European Union authorities. It is necessary to harmonize the national priorities with the priorities of the European Union and with the regional development in the Slovak Republic. Implementation of these recommendations will contribute to meet the strategic aims of the European Union listed in the Territorial Agenda of the European Union 2020 (2011) and Europe 2020.

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[3] In the process of applying for the finances within the projects of the European Union implemented through the Slovak implementation agencies is known that 20% of the project budget is a bribe to gain the European finances (Baláž, Slovak Academy of Sciences, 2014).

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