

## Tendencies of development inequalities of Croatian counties\*<sup>1</sup>

Nada Karaman Aksentijević<sup>2</sup>, Zoran Ježić<sup>3</sup>

### Abstract

*The research objective is to use the multi-criteria approach in order to analyse and establish the intensity of development disparities in Croatian counties since Croatia's independence, as well as their development tendencies. According to the basic hypothesis, it is possible to use dynamics analysis and development characteristics of Croatian counties in the past 20 years in order to establish tendencies of regional disparities and the key regional development problems. The meta-analysis method was used in the research because there was a great variety of information. Former development of Croatian counties was analysed in the first step, measured by the range between the minimum and the maximum value of some of the previously used development indicators of Croatian counties. The extent of relative development disparities was established, as well as whether they had been increasing or reducing. The main result of the analysis is evaluation of tendencies and the present development level in individual counties, and the key reasons which had an impact on development. Measures for reduction of development disparities are proposed. A complex multi-criteria regional development analysis conducted in the research shows that, in the period between 1991 and 2009, eleven counties were developing, three were developing at a slower pace, one was stagnating, and six counties lagged behind in development, which is the basic conclusion of the research.*

**Key words:** development disparities, regionalisation, regional development, Croatia

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<sup>2</sup> Full Professor, University of Rijeka, Faculty of Economics, Ivana Filipovića 4, 51000 Rijeka, Croatia. Scientific affiliation: theory and policy of economic development, regional development, economic policy, industrial policy, human resource development. Phone: + 385 51 355 111. Fax: + 385 51 212 268. E-mail: nkaraman@efri.hr.

<sup>3</sup> Senior Assistant, University of Rijeka, Faculty of Economics, Ivana Filipovića 4, 51000 Rijeka, Croatia. Scientific affiliation: human resource development, education and economic development, regional development. Phone: + 385 51 355 111. Fax: + 385 51 212 268. E-mail: zjezic@efri.hr.

## 1. Introduction

From the administrative-territorial point of view, Croatian counties are regional constituents of the Republic of Croatia. A region, as an area within the territory of a certain country, may be defined by applying various criteria: natural-geographic, economic, social and political. If regionalisation is conducted through the application of economic criteria, it may be concluded that a region is an economically "rounded" area within which business entities will be able to optimally solve numerous common development problems, and other current problems (Čavrak, 2003).

Regionalisation is a dynamic flow which accompanies urbanisation and gravitation flows, as well as territorialisation of economic activities. All the world countries conduct regionalisation by exploring the best development possibilities. Regionalisation is caused by diversity of individual spatial components of national economy. This diversity is reflected in the size and the structure of production funds, identified structure of the economy, economic and social infrastructure, and, ultimately, the achieved level of economic development.

Although regionalisation has recently become a primary consequence of economic flows, regions are primarily formed and identified as administrative-territorial units. In the course of history, they were primarily formed because administration and ruling classes needed a facilitated and more successful supervision over the entire national territory (Karaman Aksentijević, N., 1993). This is why many theorists predominantly approached solving the regionalisation problem from the point of view of administrative-territorial structure. They drew a distinction between centralised and regionalised states i.e. federal and unitary states, and classified the unitary states into centralised and decentralised (Katunarić, V., 1992). The countries of Western and Eastern Europe were traditionally centralised, and the countries located in Central Europe were decentralised. This classification was valid until the second half of the 20<sup>th</sup> century, when the entire Europe gradually became affected by the process of economic regionalisation. It started because of the necessity for rational organisation and management of the national economic space, as well as improved valorisation of regional resources and regional development advantages with co-operation of the central government and regional and local self-government units.

Thus, it may be concluded that contemporary regionalisation flows are primarily based on economics, along with the simultaneous implementation of the process of economic decentralisation. Regionalisation was especially stimulated by integration of the European economic space and implementation of regional policy as one of the basic EU public policies. Regionalisation has become a type of EU standard because it is the starting point and a precondition for the withdrawal of funds from the structural EU funds. The "bottom-up" development principle and the

subsidiarity principle were introduced in development patterns of national economies, which implies that only the problems which cannot be solved on lower levels are solved on higher levels. Namely, great dynamics of contemporary economic and social development resulted in the reduced ability of central authorities to recognise regional development problems, to mobilise and co-ordinate development resources, and to create adequate entrepreneurial climate.

In the former socialist countries of Central and Eastern Europe, the regional policy concept has evolved in the past 20 years through three successional stages (Đulabić, V., 2008): (1) marginalisation; (2) politisation; (3) rationalisation. The marginalisation stage lasted until the end of the 1990's, and was marked by low interest of political elites for solving the problem of uneven development of certain parts of the country. Regional policy was primarily perceived as the necessity to invest in physical infrastructure. The capital city of these countries was often more developed than the rest of the country, attracting both new inhabitants and investments; thus, economic development in these countries was characterised by distinct monocentricity.

The accession process to the EU undergone by the transition countries was a significant stimulation for entering the second stage (politisation). It began with political efforts to undertake activities focused on reduction of regional development disparities, which were on the rise. It ended by forming adequate legal and institutional framework for implementation of the regional policy, and everything should be aligned with the EU membership requirements.

As a rule, the rationalisation stage begins at the end of the accession process to the EU. The practice of running regional policy is unballasted by over-politisation, and is more and more guided by contemporary regional policy principles, which have also been included in both legislation and strategic documents. Development programmes were formed in line with the EU requirements because of the possibility to use the resources from the structural funds.

Most contemporary regional development theories are basically focused on development of an innovative environment, i.e. on innovation economy and on achieving competitive advantages. Innovation economy is adequate for: technological breakthroughs and technological limitations, rapid adaptation to all types of changes, relatively rapid transition of factors, from decreasing productions to new productions, for regeneration and restructuring of the regional economy affected by various external turbulences. The extent of the influence on the formation of a favourable environment suitable for development of innovation economy was presented by Camagni (Camagni, R., 1992) in a sort of a meta-model which comprises four levels of influence on the formation of local advantage factors. These are: microlevel, mezzo-sector level, macroenvironment, and socio-political and cultural level. The local advantage factors may be improved by

implementation of adequate policies: infrastructural policy, general education policy, human capital policy, integrative internal policy and by external integrations.

In his analysis of development trends in the regions of 18 European countries, S. Illeris, the founder of inductive theory of regional development, concluded that all regions have an important role in national development, although some record dynamic development, and some developmental lag. (Illeris, S., 1993) According to his theory, results of regional development primarily depend on local conditions, from which the most significant are the following: structure of local economy, political institutions and conditions, adequate support policy for local and regional development, development level of the infrastructure and urban planning; offer of educated labour force; social conditions, from which the most significant are quality of life and existence of cultural preconditions for innovations and creativity; local factor prices; population density.

Research conducted by American economists have indicated that it is historically validated that a decentralised government with authority divided between the centre and the regions has a strong impact on growth and development. Successful regional development depends on the whole series of factors and relationships, out of which some have national, and some regional characteristics (Hill, 2001).

In his research, Fröhlich (Fröhlich, Z., 2001) points out that regional and local development context is comprised of several basic types of resources and relations:

- (1) Natural resources: the existing and the created
- (2) Human resources: socio-demographic dynamics and structure, qualifications and employment, social care, social welfare, etc.
- (3) Material resources (autochthonous and built): economic, social and public infrastructure
- (4) Socio-economic basis: social cohesion; cultural identity; production structure and relations; products, services and trade; competitiveness and receptivity (market, ideas)
- (5) Balance of forces (local and external): financial capital (public and private banks and companies); political, administrative and legislative framework; information and communication.

Fröhlich claims that the significance of some of the mentioned resources has not been fully recognised in Croatia. He especially points out the significance of information, social cohesion and cultural identity, and emphasises that supporting infrastructure for regional development (economic, technological and educational) should not be neglected.

In the Regional Development Strategy of the Republic of Croatia 2011-2013 (Ministry of Regional Development, Forestry and Water Management, 2010), it is stated that certain parts of Croatia lag behind in socio-economic development and are faced with great difficulties. The most significant difficulties are: underdeveloped basic and business infrastructure; high unemployment, a small number of active business entities and their insufficient activities; slow restructuring process; low technological production and low level of use of the new technologies; inaccessible or insufficiently developed electronic communication infrastructure for provision of information society services; high level of grey economy; low population density and depopulation; aging of the population; high share of the population living in social and economic poverty; low income level of local self-government units; dependence on government grants for basic public services; insufficient capacities of regional and local self-government units for planning and managing its own development.

If the above-mentioned development difficulties are compared with those typical for countries with great regional disparities, the conclusion is derived that regional disparities are a great development problem for Croatia. Namely, it is estimated that a region lags behind in development if it records a deviation from the national average, i.e. if it has: (1) high and permanent unemployment; (2) low GDP and slow growth of GDP per capita; (3) high dependence on limited industrial structure; (4) decline in production; (5) inadequate infrastructure; (6) major emigration from the region; (7) low level of housing quality, health care and availability of education; (8) unfavourable effects of changes in the industrial technology. (Griffiths, A., Wall, S., 2004).

The objective of this research is to use the multi-criteria approach to analyse development tendencies of each county and to establish the intensity of development disparities in Croatian counties since its independence. Qualitative analysis and comparison of the obtained indicators will provide an estimate of the key causes which affected this process and point out the necessary preconditions for reduction of development disparities between Croatian counties. *Hypothesis of the paper* is derived from the set research objective: it is possible to establish the tendencies of regional disparities and the key problems of regional development by analysing the dynamics and development characteristics of Croatian counties in the past 20 years.

## 2. Methodology

Several quantitative and qualitative methods shall be applied in the research and formulation of the results. The method of transforming variables will be used in the calculation of the Human Development Index. Its application is necessary whenever there is a great number of different indicators in the research, which have to be

reduced to a common measure, and its objective is to enable harmonisation and facilitate comparison. (Habing, 2004:1-6) Mathematical and statistical methods will be used in data processing, and special attention will be devoted to meta-analysis. This is a statistical and analytical method which combines and synthesises various forms of research covering a certain problem. (Hedges, L.V., 1985, Ilić, I., 2009) The meta-analysis used in the paper is based on the assessment of Croatian counties by forming a common scale which facilitates the review of tendencies and rapidity of their development. The method is implemented in three steps: by collecting (macroeconomic) indicators, by forming and analysing a data display scale. Although some indicators in the paper are analysed for the period of 20 years, and some for a shorter period, this is relativised by meta-analysis. Such approach was selected primarily because the statistical base that follows the development of Croatian counties in the past twenty years has proved to be inadequate.

### **3. Tendencies of development disparities in Croatian counties**

In the structural sense, contemporary Croatian environment is highly complex. This complexity is especially reflected in the territorial position, surface of the regions and regional development. Pursuant to the Constitution of the Republic of Croatia adopted in 1990, the country is territorially organised in municipalities, districts and counties. The first Law on Territories of Counties, Cities and Municipalities in the Republic of Croatia was adopted at the end of 1992. Pursuant to this Law, county became a natural self-governing unit in the Republic of Croatia (Fröhlich, Z.,1999). According to the administrative-territorial classification, the Republic of Croatia has 21 counties (including the City of Zagreb), 126 cities and 429 municipalities. ([www.dzs.hr](http://www.dzs.hr)). The Republic of Croatia is also divided in three statistical regions: Northwestern Croatia, Central and Eastern (Pannonian) Croatia, and Adriatic Croatia. These regions are a part of European nomenclature of regional territorial division (NUTS) and are important in relation to the structure and use of resources from different EU regional development funds.

The population of Northwestern Croatia is the most numerous. According to the Censi, the City of Zagreb and the Zagreb County have achieved the greatest increase in the number of inhabitants. The Zagreb County records an increase of 15.56% in 2011 in relation to 1991, and the City of Zagreb an increase of 6.53%. This is also the area with the greatest population density – Northwestern Croatia has three times more inhabitants per one square mile than other Croatian regions. In the period between 1991 and 2011, Istra County also recorded an increase in the number of inhabitants (4.67%). In all the other Croatian counties, there has been significant decrease in the number of inhabitants. The greatest decrease in the number of inhabitants was recorded in the Central and Eastern (Pannonian) region of Croatia, in which Vukovar-Srijem County and Sisak-Moslavina County recorded

Table 1: Surface and number of inhabitants according to the Census in Croatian counties in the selected years

Region / County	Surface in km <sup>2</sup>	Share in the Rep. of Croatia (%)	Total number of inhabitants in 1991	Share in the Rep. of Croatia (%)	Total number of inhabitants in 2001	Share in the Rep. of Croatia (%)	Total number of inhabitants in 2011*	Share in the Rep. of Croatia (%)
<i>North-West Croatia</i>	8,672	15.3	1,646,692	34.4	1,658,935	37.4	1,649,623	38.4
City of Zagreb	640	1.1	777,826	16.3	779,145	17.6	792,875	18.5
Zagreb County	3,078	5.4	282,989	5.9	309,696	7.0	317,642	7.4
Krapina-Zagorje	1,230	2.2	148,779	3.1	142,432	3.2	133,064	3.1
Varaždin	1,260	2.2	187,853	3.9	184,769	4.2	176,046	4.1
Koprivnica-Križevci	1,734	3.1	129,379	2.7	124,467	2.8	115,582	2.7
Medimurje	730	1.3	119,866	2.5	118,426	2.7	114,414	2.7
<i>Central and Eastern (Pannonian) Croatia</i>	23,174	41.0	1,557,342	32.6	1,351,517	30.5	1,227,661	28.6
Bjelovar-Bilogora	2,638	4.7	144,042	3.0	133,084	3.0	119,743	2.8
Virovitica-Podravina	2,021	3.6	104,625	2.2	93,389	2.1	84,586	2.0
Požega-Slavonia	1,821	3.2	99,334	2.1	85,831	1.9	78,031	1.8
Brod-Posavina	2,027	3.6	174,998	3.7	176,765	4.0	158,559	3.7
Osijek-Baranja	4,149	7.3	367,193	7.7	330,506	7.4	304,899	7.1
Vukovar-Srijem	2,448	4.3	231,241	4.8	204,768	4.6	180,117	4.2
Sisak-Moslavina	4,448	7.9	251,332	5.3	185,387	4.2	128,749	3.0
Karlovac	3,622	6.4	184,577	3.9	141,787	3.2	172,977	4.0
<i>Adriatic Croatia</i>	24,696	43.7	1,560,231	32.6	1,427,008	32.2	1,413,328	32.9
Primorje-Gorski Kotar	3,590	6.3	323,130	6.8	305,505	6.9	296,123	6.9
Lika-Senj	5,350	9.5	85,135	1.8	53,677	1.2	51,022	1.2
Zadar	3,643	6.4	214,777	4.5	162,045	3.7	170,398	4.0
Šibenik-Knin	2,994	5.3	152,477	3.2	112,891	2.5	109,320	2.5
Split-Dalmatia	4,524	8.0	474,019	9.9	463,676	10.4	455,242	10.6
Istra	2,813	5.0	204,346	4.3	206,344	4.7	208,440	4.9
Dubrovnik-Neretva	1,782	3.2	126,329	2.6	122,870	2.8	122,783	2.9
<i>REPUBLIC OF CROATIA</i>	56,542	100.0	4,784,265	100.0	4,437,460	100.0	4,290,612	100.0

Note: \* Information for 2011 represent the first temporary results of the Census (CBS 29/6/2011); in 2011, the Census recorded Croatian citizens, foreign citizens and persons without citizenship residing in the Republic of Croatia, regardless of whether they resided in the Republic of Croatia at the time of the Census or abroad, and the persons who at the critical time of the Census had residency in the Republic of Croatia.

Source: Author's calculation according to the data at [www.dzs.hr](http://www.dzs.hr)

Table 2: GDP per capita, number of the unemployed and the share of investments in total investments in Croatian counties in the selected years

Region / County	GDP per capita, EUR			Number of the unemployed				The share of investments in total investments, %			
	Relation to the Croatian average (RC=100)	2008	Relation to the Croatian average (RC=100)	Relation to the Croatian average (RC=100)	2008	Relation to the Croatian average (RC=100)	Change in share of 1996th to 2008th (percentage point)	1996	2008	Change in share of 1996th to 2008th (percentage point)	
	2000		1996								
<i>North-West Croatia</i>	6,407	115.9	12,010	124.4	62,547	24.0	58,123	24.6	73.34	69.48	-3.9
City of Zagreb	8,532	154.3	16,766	173.6	28,181	10.8	26,584	11.2	64.71	60.22	-4.5
Zagreb County	4,236	76.6	7,360	76.2	9,871	3.8	9,814	4.1	2.31	3.71	1.4
Krapina-Zagorje	3,995	72.3	7,144	74.0	4,694	1.8	4,053	1.7	0.8	1.38	0.6
Varaždin	4,852	87.8	8,223	85.2	9,634	3.7	6,822	2.9	1.97	2.12	0.2
Koprivnica-Križevci	5,487	99.2	9,142	94.7	4,187	1.6	5,799	2.4	2.37	0.91	-1.5
Međimurje	4,397	79.5	7,581	78.5	5,980	2.3	5,051	2.1	1.18	1.14	0.0
<i>Central and Eastern (Pannonian) Croatia</i>	3,968	71.8	6,851	71.0	96,002	36.8	103,713	43.8	8.61	8.54	-0.1
Bjelovar-Bilogora	4,105	74.2	6,691	69.3	8,197	3.1	10,316	4.4	0.67	0.73	0.1
Virovitica-Podravina	4,045	73.2	6,923	71.7	5,927	2.3	7,729	3.3	0.77	0.54	-0.2
Požega-Slavonia	3,934	71.2	6,505	67.4	4,225	1.6	4,669	2.0	0.54	0.34	-0.2
Brod-Posavina	3,260	59.0	5,345	55.4	14,574	5.6	12,779	5.4	0.99	0.82	-0.2
Osijek-Baranja	4,147	75.0	7,875	81.6	23,691	9.1	25,633	10.8	2.59	2.9	0.3
Vukovar-Srijem	3,184	57.6	5,756	59.6	18,618	7.1	16,380	6.9	0.96	1.39	0.4
Sisak-Moslavina	4,949	89.5	7,200	74.6	10,657	4.1	15,392	6.5	0.85	0.93	0.1
Karlovac	4,124	74.6	7,825	81.0	10,113	3.9	10,815	4.6	1.24	0.89	-0.4
<i>Adriatic Croatia</i>	5,056	91.4	9,471	98.1	102,474	39.3	74,905	31.6	18.05	21.98	3.9
Primorje-Gorski Kotar	6,682	120.9	11,177	115.8	18,187	7.0	12,911	5.5	4.27	5.53	1.3
Lika-Senj	4,478	81.0	8,039	83.3	2,376	0.9	2,998	1.3	0.24	0.31	0.1
Zadar	3,872	70.0	7,980	82.6	14,184	5.4	9,410	4.0	1.4	1.56	0.2
Šibenik-Knin	3,710	67.1	7,799	80.8	9,247	3.5	6,570	2.8	0.72	1.33	0.6
Split-Dalmatia	4,097	74.1	8,003	82.9	40,725	15.6	31,562	13.3	6.59	6	-0.6
Istra	6,828	123.5	12,463	129.1	8,553	3.3	5,325	2.2	3.78	4.98	1.2
Dubrovnik-Neretva	4,679	84.6	10,042	104.0	9,201	3.5	6,112	2.6	0.94	2.17	1.2
CROATIA	5,529	100.0	9656	100.0	261023	100.0	236741	100.0	100	100	0.0

Source: Authors' calculation according to the data at [www.dzs.hr](http://www.dzs.hr)



extremely negative deviations. Depopulation is a consequence of low birth rates and non-realisation of population increase, but also migrations of the population during the war.

According to the key regional development indicators: GDP per capita and the share of realised investments in total investments of the Republic of Croatia, Northwestern Croatia has significant positive deviations in relation to other regions. Considering the fact that the basis of this region is the City of Zagreb, according to the number of inhabitants and population density, this also indicates the problem of centralisation. Namely, the City of Zagreb realises 60% of all the investments in the Republic of Croatia on a small and densely populated area, as well as 31% of Croatian GDP. Except for the City of Zagreb, the Zagreb County and the Varaždin County have the greatest share in realised investments. The City of Zagreb is the most developed city in the Northwestern region and it also records the greatest increase in GDP deviation compared to the Croatian average.

The surface of Adriatic Croatia takes up the largest space of the Republic of Croatia (43.7% of the country's surface), and it is the second most developed region. In this region, Primorje-Gorski Kotar County and Istra County record the GDP level which does not significantly lag behind in comparison with the City of Zagreb. These counties, in terms of their investment value, record the greatest positive growth in relation to other counties and regions. Adriatic Croatia also records greater average reduction of the number of the unemployed than the Northwestern Croatia. The counties which stand out the most are Split-Dalmatia, Istra, Zadar and Dubrovnik-Neretva County, whose shares in the total number of the unemployed have been reduced.

The most undeveloped part of Croatia is Central and Eastern (Pannonian) region. It significantly lags behind in comparison with the other two Croatian regions. Six of eight counties in this region record an increase in the number of the unemployed. The number of the unemployed is reduced only in Vukovar-Srijem County and Brod-Posavina County. The most developed county of Central and Eastern Croatia is Osijek-Baranja County, which is logical, taking into consideration that Osijek is the fourth largest city in the Republic of Croatia. The Karlovac County follows; although its GDP is similar to the GDP in Osijek-Baranja County, it records an increase in the number of the unemployed and reduction of the share of investments in total investments.

Although GDP per capita is one of the more important regional development indicators, which also provides general insight in the population's living standard, some specific indicators i.e. elements of the living standard in Croatian counties are analysed below. Fröhlich (1999) analyses the living standard elements for 1991. The analysis for 2009 was created by implementation of these indicators in order to notice the shifts in the living standard.

Table 3: Deviations of the selected living standard indicators from the Croatian average in 1991 and 2009 (Croatia = 100)

County	(1)		(2)		(3)		(4)		(5)		(6)							
	1991	2009-2001	1991	2009	2009-2001	1991	2009	2009-2001	1991	2009	2009-2001	1991	2009	2009-2001				
City of Zagreb	95	0	68	67	-1	253	697	444	71	100	29	50	58	8	176	150	-26	
Zagreb County	100	17	191	*	-	139	114	-25	276	116	-160	500	213	-287	9	23	14	
Krapina-Zagorje	106	18	132	107	-25	85	96	11	130	115	-15	120	127	7	133	52	-81	
Varaždin	109	12	117	99	-18	122	100	-22	104	108	4	102	123	21	95	82	-13	
Koprivnica-Križevci	101	11	108	95	-13	80	70	-10	93	105	12	145	151	6	39	62	23	
Međimurje	111	126	15	111	-12	122	122	0	100	112	12	158	145	-13	56	67	11	
Bjelovar-Bilogora	93	102	9	113	-15	66	56	-10	95	95	0	138	139	1	26	43	17	
Virovitica-Posravina	94	102	8	142	-32	80	65	-15	104	96	-8	150	147	-3	47	57	10	
Požega-Slavonia	99	102	3	117	-5	89	73	-16	103	101	-2	129	114	-15	61	68	7	
Brod-Posavina	105	114	9	128	-4	103	116	13	101	106	5	123	123	0	59	42	-17	
Ostijek-Baranja	98	104	6	132	-12	140	121	-19	83	90	7	133	121	-12	59	77	18	
Vukovar-Srijem	104	108	4	162	-30	154	121	-33	95	99	4	268	152	-116	76	65	-11	
Sisak-Moslavina	103	89	-14	113	114	74	61	-13	74	77	3	147	136	-11	63	67	4	
Karlovac	98	93	-5	118	103	-15	69	-18	112	97	-15	118	110	-8	77	84	7	
Primorje-Gorski Kotar	90	92	2	69	86	17	101	126	25	78	90	12	67	78	11	133	157	24
Lika-Senj	98	74	-24	164	117	-47	30	17	-13	145	123	-22	243	162	-81	57	88	31
Zadar	113	89	-24	106	110	4	81	62	-19	163	110	-53	240	112	-128	103	96	-7
Šibenik-Knin	99	88	-11	141	105	-36	84	58	-26	147	131	-16	92	114	22	100	142	42
Split-Dalmatia	108	96	-12	103	100	-3	108	116	8	132	65	-67	98	104	6	124	130	6
Istra	92	90	-2	58	73	15	60	76	16	85	107	22	97	106	9	183	151	-32
Dubrovnik-Neretva	101	104	3	104	99	-5	63	83	20	120	77	-43	87	108	21	112	117	5
Croatia	100	100	0	100	100	0	100	100	0	100	100	0	100	100	0	100	100	0

Note: \* City of Zagreb and the Zagreb County are included

Source: Authors' calculation according to: Fröhlich, Z (editor): *Koncepcija regionalnog gospodarskog razvika Republike Hrvatske*, Economic Institute Zagreb, Zagreb, 1999, p. 73 (data for 1991) and Central Bureau of Statistics, Statistical Yearbook of the Republic of Croatia, 2010 (data for 2009)

The assessment of the living standard in the analysis of regional disparities is significant because it has a positive correlation with economic development level. It is estimated that the reached development level opens possibilities for living standard development, and vice versa. As the living standard level and its structure depend on the level of economic awareness, material development of an area depends on reverse impact of the living standard. The selected living standard indicators for Croatian counties are compared with the Croatian average in order to establish positive and negative deviations in living standard development in the period between 1991 and 2009. The analysed indicators are:

- (1) The number of inhabitants per one apartment (lower index is more favourable)
- (2) The number of inhabitants per passenger vehicle (lower index is more favourable)
- (3) The number of inhabitants per one kilometre of the road (lower index is more favourable)
- (4) The number of inhabitants per one TV subscription (lower index is more favourable)
- (5) The number of inhabitants per one health care worker (lower index is more favourable)
- (6) Water consumption in a household per capita in a m<sup>3</sup> (higher index is more favourable)

Significant positive shifts in the living standard of the population were achieved in the analysed period: the number of inhabitants per one apartment was reduced; the number of passenger vehicles was significantly increased; the length of the constructed roads was increased; the number of TV subscriptions was increased; the number of health care workers per capita was increased, and water consumption in a household per capita was also increased.

However, not all counties recorded the same increase in the living standard. The City of Zagreb, Istra County, Primorje-Gorski Kotar County have the highest positive deviations, and the greatest lags were recorded in the Lika-Senj and Vukovar-Srijem County. It should be noted that these two counties also record positive shifts: there is an increase in the number of the constructed housing units and an increase in the number of registered motor vehicles. However, they lag behind in building of infrastructure which has a significant impact on competitiveness of these counties.

Competitiveness of the counties may be defined as an ability to increase employment, gross domestic product, and production in general in a region. Competitiveness of Croatian counties is analysed through the Regional Competitiveness Index (National Competitiveness Council 2011). The Regional Competitiveness Index has been

monitored since 2007, and competitiveness of the counties has been monitored as well. Taking into consideration the available statistical base, Regional Competitiveness Index for Croatian counties and regions will be analysed below, for 2007 and 2010 (Table 4). It is important to note that Regional Competitiveness Index is analysed through four basic indicators: business environment rank, business sector rank, statistical and perceptive rank. The difference between the last two is that the first is based on eight pillars of competitiveness (Demography, Health and Culture; Education; Basic Infrastructure and the Public Sector; Business Infrastructure; Investments and Entrepreneurial Dynamics, Entrepreneurship Development, Level of Economic Results; Economic Results Dynamics), and the survey subindex on nine pillars of competitiveness (Location Advantages; Local Government; Infrastructure; Rule of Law; Education; Financial Market and Local Competition; Technology and Innovativeness; Clusters; Marketing and Management). The eight pillars included in the statistical subindex were created on the basis of 123 statistical indicators, and the nine pillars included in the survey subindex were designed on the basis of 68 survey questions, for each county and region. The final rank of the counties is a sum of statistical and participatory rank, in which 75% is statistical, and 25% participatory rank ([www.konkurentnost.hr](http://www.konkurentnost.hr)).

In 2010, the ranking of the regions in comparison with 2007 remained unchanged. The most developed is the Northwestern Croatia, followed by the Adriatic Croatia and Central and Eastern (Pannonian) Croatia. In 2010, there was also a change in the ranking of some counties. The most significant positive change was recorded in the Krapina-Zagorje County (four places up). This shift was mostly caused by business infrastructure development and entrepreneurship development, which had a positive impact on the dynamics of economic results ([www.konkurentnost.hr](http://www.konkurentnost.hr)). A positive shift (three places up) was also realised by the Varaždin County (ranked first in 2010), Zadar County (ranked sixth in 2010), and Šibenik-Knin County (ranked 10<sup>th</sup> in 2010). Positive shifts were also recorded in Brod-Posavina County, Osijek-Baranja County, Vukovar-Srijem County, Lika-Senj County and Dubrovnik-Neretva County. The greatest negative shift in the ranking in 2010 in relation to 2007 was recorded in Koprivnica-Križevci County (five places lower on the competitiveness ladder), and Bjelovar-Bilogora County (four places lower). Decrease in investments and negative demographic trends had the greatest impact on the reduction of their rank ([www.konkurentnost.hr](http://www.konkurentnost.hr)). Lower ranking in relation to 2007 was also recorded in the City of Zagreb, Međimurje County, Požega-Slavonia County, Sisak-Moslavina County, Karlovac County and Primorje-Gorski Kotar County. The ten counties with the lowest competitiveness rank also have the lowest development rank – less than 75% of the Croatian average.

Table 4: Regional Competitiveness Index for 2007 and 2010

Region / County	Rank 2007	Rank 2010	Change 2010/2007
North-West Croatia	1	1	-
City of Zagreb	1	2	-1
Zagreb County	5	5	-
Krapina-Zagorje	15	11	+4
Varaždin	4	1	+3
Koprivnica-Križevci	7	12	-5
Međimurje	2	4	-2
Central and Eastern (Pannonian) Croatia	3	3	-
Bjelovar-Bilogora	11	15	-4
Virovitica-Podravina	17	17	-
Požega-Slavonia	20	21	-1
Brod-Posavina	18	16	+2
Osijek-Baranja	14	13	+1
Vukovar-Srijem	21	20	+1
Sisak-Moslavina	16	19	-3
Karlovac	12	14	-2
Adriatic Croatia	2	2	-
Primorje-Gorski Kotar	6	7	-1
Lika-Senj	19	18	+1
Zadar	9	6	+3
Šibenik-Knin	13	10	+3
Split-Dalmatia	8	8	-
Istra	3	3	-
Dubrovnik-Neretva	10	9	+1

Source: Authors' calculation according to [http://www.undp.hr/upload/file/265/132938/FILENAME/NVK\\_2010\\_WEB.pdf](http://www.undp.hr/upload/file/265/132938/FILENAME/NVK_2010_WEB.pdf)

In the new development theories, lower competitiveness and underdevelopment are often attributed to insufficient human resources development. (Todaro, M. P., Smith, S.C., 2006)

On the national level, human resources may be defined as total psycho-physical energy owned by the inhabitants of a country, i.e. at the society's disposal, which can be used for realisation of its development goals. Human resources cannot be directly expressed in terms of value; thus, their value and their development are measured indirectly. (Karaman Aksentijević, N.:2011). Lately, the Human Development Index (HDI) is calculated by the OUN. Taking into consideration its content, the HDI may be used as a good indicator of human resources development, and, at the same time, HDI is a good indicator of the achieved development level of

a country or a region. The index was created in the early 1990s by Amartya Sen, Mahub ul Hak, Gustav Ranis (Yale University), Meghan Desai (London School of Economics); it has been used ever since by the OUN and is published in the annual Human Development Report.

Table 5: Human development index (HDI) for Croatian counties in the selected years

County	2002		2008		HDI difference 2008-2002	The difference compared with the mean RH
	HDI	Relation to the Croatian average (Croatia=100)	HDI	Relation to the Croatian average (Croatia=100)		
City of Zagreb	0.8099	105.63	0.8866	105.57	0.0767	-0.06
Zagreb County	0.7479	97.55	0.8165	97.23	0.0686	-0.32
Krapina-Zagorje	0.7372	96.15	0.806	95.98	0.0688	-0.18
Varaždin	0.7706	100.51	0.8283	98.63	0.0577	-1.88
Koprivnica-Križevci	0.7564	98.66	0.8252	98.26	0.0688	-0.40
Međimurje	0.7548	98.45	0.8296	98.79	0.0748	0.34
Bjelovar-Bilogora	0.7392	96.41	0.8132	96.83	0.074	0.42
Virovitica-Podravina	0.737	96.13	0.8045	95.80	0.0675	-0.33
Požega-Slavonia	0.7411	96.66	0.8056	95.93	0.0645	-0.73
Brod-Posavina	0.7324	95.53	0.8007	95.34	0.0683	-0.18
Osijek-Baranja	0.7465	97.37	0.8219	97.87	0.0754	0.50
Vukovar-Srijem	0.7319	95.46	0.8059	95.96	0.074	0.50
Sisak-Moslavina	0.744	97.04	0.8086	96.28	0.0646	-0.75
Karlovac	0.7495	97.76	0.8223	97.92	0.0728	0.16
Primorje-Gorski Kotar	0.794	103.56	0.8623	102.68	0.0683	-0.88
Lika-Senj	0.7421	96.79	0.8168	97.26	0.0747	0.47
Zadar	0.7568	98.71	0.8386	99.86	0.0818	1.15
Šibenik-Knin	0.745	97.17	0.8254	98.29	0.0804	1.12
Split-Dalmatia	0.7678	100.14	0.8421	100.27	0.0743	0.13
Istra	0.7916	103.25	0.8534	101.62	0.0618	-1.63
Dubrovnik-Neretva	0.778	101.47	0.8571	102.06	0.0791	0.59
Croatia	0.7667	100.00	0.8398	100.00	0.0731	0.00

Source: Authors' calculation according to [www.dzs.hr](http://www.dzs.hr)

The concept of human development in the wider sense is defined by the OUN as development of the people, development for the people and development by the people (Human Development Report, 1993). By the method of transforming variables, HDI is calculated as a combined index of three indicators. They are: 1.

length of life and population's health measured by the expected life span, 2. knowledge and education of the population, 3. purchasing power i.e. living standard of the population measured by GDP per capita. The first two indicators indirectly show human resources development, while the third one shows the achieved development level in a certain country (region). All world countries (regions) were ranked in three groups according to HDI level until 2009: (0.000 – 0.499 low HDI countries; 0.500 – 0.799 medium HDI countries; 0.800 – 1.00 high HDI countries). In 2009, a special category was introduced - very high HDI country (HDI from 0.900 to 1.00), and in 2010, the countries (regions) were ranked in four groups, where every group makes 25% of the whole, depending on the rank. (Human Development Report, 2010).

In 2002, only the City of Zagreb had high human development measured by the Human Development Index (HDI=0.8099), and Varaždin, Primorje-Gorski Kotar, Split-Dalmatia, Istra and Dubrovnik-Neretva County have higher human development than the Croatian average. In 2008, most counties were on the lower level of high human development (HDI 0.8007 – 0.8296), and not a single county had very high human development (higher index than 0.9). The highest human development level was achieved by the City of Zagreb, Primorje-Gorski Kotar County and Istra County, while the Varaždin County, unlike in 2002, no longer had a positive deviation in relation to the Croatian average. The greatest positive shift, measured by HDI difference, was recorded in the Zadar County.

Deviations of key development indicators of Croatian counties are determined by the meta-analysis below.

#### **4. Deviations of key development indicators of Croatian counties – research results**

Table 6 presents the summary of all the preceding tables. The table shows the tendency of regional disparities. Each indicator is marked by a positive (+) or negative (-) sign. Numbers 1 to 5 in the table header signify:

1. change in the number of inhabitants according to the censi – the positive sign (+) marks increase, and the negative sign (-) decrease in the number of inhabitants; the greatest positive tendency is marked with two pluses (the City of Zagreb), positive tendency with one plus (Istra County), the greatest negative tendency with two minuses (Sisak-Moslavina County), and negative tendency with one minus (other counties);
2. tendency of GDP per capita, unemployment rate and investments – increase in BDP per capita, reduction of the number of the unemployed and increase in the share of investments in total investments represents a positive tendency of the

analysed occurrence. Each positive shift is marked with one plus, and negative with one minus. The county which recorded the greatest positive tendency is marked with two pluses, and the greatest negative tendency with two minuses: the City of Zagreb recorded the greatest increase in the number of inhabitants, and Sisak-Moslavina County the greatest reduction; Split-Dalmatia County recorded the greatest reduction of the number of the unemployed, and Sisak-Moslavina County the greatest increase; Zagreb County recorded the greatest increase in the number of investments in total investments, and the City of Zagreb the greatest reduction;

3. living standard tendency measured by six indicators – two pluses represent positive tendency in all six indicators (the City of Zagreb), two minuses negative tendency in all the indicators (Brod-Posavina, Vukovar-Srijem, Sisak-Moslavina County), and a plus and a minus a combination of negative and positive shifts (all counties except the above-mentioned ones);
4. competitiveness of a county – positive tendency is represented by positive shift on the competitiveness ladder, and negative tendency by decrease in the rank on the competitiveness ladder; two pluses mark a county with the highest positive ranking shift (Krapina-Zagorje County), and two minuses the county with the greatest negative ranking shift (Koprivnica-Križevci County);
5. Human Development Index, which measures human development - positive shift represents an increase in Human Development Index in the analysed period, and counties with lower human development level are marked with a plus-minus.

The row "Total 1-5" presents the sum of all the positive and negative tendencies.

Table 6: Analysis of development tendencies of Croatian counties

County	1	2	3	4	5	Total 1-5
City of Zagreb	++	+++ --	++	-	+	+5
Zagreb County	+	++++	+ -	+	+ -	+6
Krapina-zagorje	-	+++	+ -	++	+	+5
Varaždin	-	+++	+ -	+	+	+4
Koprivnica-Križevci	-	+ - -	+ -	--	+	-3
Međimurje	-	+++	+ -	-	+	+1
Bjelovar-bilogora	-	+ - +	+ -	-	+ -	-1
Virovitica-Podravina	-	+ - -	+ -	+	+ -	-1
Požega-Slavonia	-	+ - -	+ -	-	+ -	-3
Brod-Posavina	-	++ -	--	+	+ -	-1
Osijek-Baranja	-	+ - +	+ -	+	+	+2
Vukovar-Srijem	-	+++	--	+	+ -	+1
Sisak-Molsavina	--	+ - - +	--	-	+ -	-5
Karlovac	-	+ - -	+ -	-	+ -	-3
Primorje-Gorski Kotar	-	+++	+ -	-	+	+2
Lika-Senj	-	+ - +	+ -	+	+ -	+1



County	1	2	3	4	5	Total 1-5
Zadar	-	++++	+ -	+	+	+5
Šibenik-Knin	-	++++	+ -	+	+	+5
Split-Dalmatia	-	+++ -	+ -	+	+	+4
Istra	+	+++ +	+ -	+	+	+6
Dubrovnik-Neretva	-	+++ +	+ -	+	+	+4

Source: Authors' calculation according to tables 1-5

The objective of this research is to determine, not only development tendency of each county, but also the intensity of development disparities.

The intensity of deviations from the Croatian average is presented in the Table 7. Increase in positive deviations from the Croatian average is marked with plus (+), and decrease with minus (-). Reduction of negative deviations from the Croatian average is marked with plus, and increase with minus. The mark "0" signifies that there is no change of deviation in relation to the Croatian average.

Table 7: Analysis of the intensity of development disparities of counties from the Croatian average

County	1	2	3	4	5	Total 1-5
City of Zagreb	+	+ -	-	-	-	-1
Zagreb County	+	- +	-	+	-	-1
Krapina-zagorje	+	+++	+	+	-	+5
Varaždin	-	- + +	+	+	-	+2
Koprivnica-Križevci	+	- - -	-	- -	-	-6
Međimurje	0	- + 0	+	-	+	+1
Bjelovar-Bilogora	+	- +	-	-	+	-1
Virovitica-Podravina	-	- - -	-	+	-	-5
Požega-Slavonia	-	- - -	+	-	-	-5
Brod-Posavina	0	- + -	+	+	-	0
Osijek-Baranja	-	+ - +	+	+	+	+1
Vukovar-Srijem	-	+++	+	+	+	+3
Sisak-Moslavina	-	- +	-	-	-	-5
Karlovac	-	+ -	-	-	+	-3
Primorje-Gorski Kotar	+	- + +	-	-	-	-1
Lika-Senj	-	+ - +	-	+	+	+1
Zadar	-	+++	-	+	+	+3
Šibenik-Knin	-	+++	-	+	+	+3
Split-Dalmatia	+	+ + -	-	+	+	+3
Istra	+	+++	+	+	-	+5
Dubrovnik-Neretva	+	+++	-	+	+	+5

Source: Authors' calculation according to tables 1-5

Based on the analysis of the tendency and intensity of deviations from the Croatian average, it is determined that eleven counties are developing, three develop at a slower pace, one county stagnates, and six counties lag behind in development (Table 8).

Table 8: Tendency and intensity of Croatian counties development

County	Direction (table 6)	Intensity (table 7)	Comment
City of Zagreb	+	-	It develops at a slower pace
Zagreb County	+	-	It develops at a slower pace
Krapina-zagorje	+	+	It develops
Varaždin	+	+	It develops
Koprivnica-Križevci	-	-	Lags
Međimurje	+	+	It develops
Bjelovar-bilogora	-	-	Lags
Virovitica-Podravina	-	-	Lags
Požega-Slavonia	-	-	Lags
Brod-Posavina	-	0	Stagnant
Osijek-Baranja	+	+	It develops
Vukovar-Srijem	+	+	It develops
Sisak-Moslavina	-	-	Lags
Karlovac	-	-	Lags
Primorje-Gorski Kotar	+	-	It develops at a slower pace
Lika-Senj	+	+	It develops
Zadar	+	+	It develops
Šibenik-Knin	+	+	It develops
Split-Dalmatia	+	+	It develops
Istra	+	+	It develops
Dubrovnik-Neretva	+	+	It develops

Source: Authors' calculation according to tables 6 and 7

Krapina-Zagorje, Varaždin, Međimurje, Osijek-Baranja, Vukovar-Srijem, Lika-Senj, Zadar, Šibenik-Knin, Split-Dalmatia, Istra and Dubrovnik-Neretva County develop and record an increase in positive deviations in relation to the Croatian average. Brod-Posavina County stagnates in terms of development, and Zagreb County, Primorje-Gorski Kotar County and the City of Zagreb record positive shifts; however, their positive deviations in relation to the Croatian average have been decreasing. Although the City of Zagreb still holds significant advantages in relation to all Croatian counties, its share in the analysed indicators is reduced, which is a consequence of faster development of the counties which realise positive development shifts and more rapid development intensity. The counties which lag behind in terms of development are the following: Koprivnica-Križevci, Bjelovar-Bilogora, Virovitica-Podravina, Požega-Slavonia, Sisak-Moslavina and the Karlovac County (Map 1).

Map 1: Tendency and intensity of Croatian counties development from 1991 to 2009



Note: dark colour marks the developing counties, hatched marks the counties which develop at a slower pace, white the counties which stagnate, and light colour marks the counties which lag behind in development; County: 1-City of Zagreb, 2-Krapina-Zagorje, 3-Sisak-Moslavina, 4-Karlovac, 5-Varaždin, 6-Koprivnica-Križevci, 7-Bjelovar-Bilogora, 8-Primorje-Gorski Kotar, 9-Lika-Senj, 10-Virovitica-Podravina, 11-Požega-Slavonia, 12-Brod-Posavina, 13-Zadar, 14-Osijek-Baranja, 15-Šibenik-Knin, 16-Vukovar-Srijem, 17-Split-Dalmatia, 18-Istra, 19-Dubrovnik-Neretva, 20-Medimurje, 21-City of Zagreb

Source: authors' calculation according to Table 8

All of these counties are located in the Central and Eastern (Pannonian) region; thus, this Croatian region has been recording the greatest development lags in the past 19 years.

## 5. Conclusion

Research results in this paper prove the set hypothesis that it is possible to determine the tendencies of regional disparities and the key regional development problems by analysing the dynamics and characteristics of Croatian counties development in the past 20 years. Namely, in the 20 years of its independence, development of the Republic of Croatia has clearly shown territorial monocentricity in development.

Consequently, most economic activities take place in the City of Zagreb. 31% of Croatian GDP and 60% of all investments are realised there. As much as 18.6% of Croats in 2011 live in Zagreb. When the inhabitants of the Zagreb County are added to this number, the conclusion is that more than one fourth of the Croatian population resides in the wider Zagreb area. 97% of the total population growth in Zagreb in the period of twenty years occurred in the past decade. A complex multi-criterion regional development analysis conducted in this research has shown that, in the period between 1991 and 2009, eleven counties were developing, three developed with slower intensity, one stagnated, and six counties lagged behind in their development. Along with the City of Zagreb, positive shifts and reduction of development disparities were recorded in the Krapina-Zagorje, Varaždin, Međimurje, Osijek-Baranja, Vukovar-Srijem, Lika-Senj, Zadar, Šibenik-Knin, Split-Dalmatia, Istra and Dubrovnik-Neretva County. This is primarily the consequence of investment flows, concentration of capital and differences in human resources development. It should be pointed out that, from the perspective of the three statistical regions, the greatest development lags were recorded in the Central and Eastern (Pannonian) Croatia. Scientific contribution of this research is reflected in the insight and interpretation of the new facts on development of Croatian counties. Experience-based development patterns implemented in the EU Member States and change in territorial development trends may be achieved primarily by more rapid implementation of economic decentralisation. Real regionalisation, which implies the implementation of "bottom-up" development approach, is a precondition for more rapid development of all parts of Croatia and all Croatian counties, not only the ones which lag behind in relation to the Croatian average. Such regional progress, which is to be achieved through the process of decentralisation, is possible only if all the structures of the society agree that such future is also European future for each of the regions.

The key limitation in the conducted research was inadequate statistical base. Data were not published continuously, and the methodology of their collecting has changed several times in the past twenty years. So, for example, it is impossible to analyse tendencies of GDP per capita as the basic development indicator, and the living standard for Croatian counties in the period from 1991 to 2000, because there is no corresponding statistical base, and data for 2008 were published in 2011. The statistical base does not provide the possibility for calculation of a greater number of living standard indicators. In future research, it is necessary to analyse living standard with a greater number of indicators in order to obtain more reliable data.

In order to improve competitiveness in the counties and regions, business capacities should be strengthened through leadership capacities which will be able to stimulate the necessary activities in order to increase regional competitiveness, increase operational capacities for using pre-accession instruments and, later, instruments of the EU funds; to improve government policies in order to reduce developmental gaps between the counties; to include local, regional and academic community in solving the problem of regional disparities.

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## Tendencije razvojnih nejednakosti hrvatskih županija<sup>1</sup>

Nada Karaman Aksentijević<sup>2</sup>, Zoran Ježić<sup>3</sup>

### Sažetak

Cilj istraživanja je višekriterijalnim pristupom istražiti i utvrditi intenzitet razvojnih nejednakosti u hrvatskim županijama te njihov razvojni smjer. Polazna hipoteza je da je moguće analizom dinamike i obilježja razvoja hrvatskih županija u proteklih 20 godina utvrditi tendencije regionalnih nejednakosti i ključne probleme regionalnog razvoja. U istraživanju, zbog većeg broja različitih podataka, primijenjena je metoda meta-analize. U prvom koraku analiziran je dosadašnji razvoj hrvatskih županija mjeren rasponom između najmanje i najveće vrijednosti nekih do sada korištenih pokazatelja razvijenosti hrvatskih županija. Utvrđeno je kolike su relativne razlike u njihovoj razvijenosti te jesu li se one smanjivale ili povećavale. Potom je analiziran njihov razvoj primjenom novih međunarodno prihvaćenih pokazatelja. Glavni rezultat analize je ocjena o kretanju i sadašnjoj razini razvijenosti pojedine županije te o ključnim uzrocima koji su na to utjecali. Slijedom toga predložene su mjere za smanjenje razlika u razvijenosti. Kompleksna višekriterijalna analiza regionalnog razvoja provedena u istraživanju, pokazala je da se u razdoblju 1991.-2009. godine 11 županija razvija, tri se razvijaju sa sporijim intenzitetom, jedna stagnira, a šest županija zaostaje u razvoju što je temeljni zaključak istraživanja.

**Ključne riječi:** razvojne nejednakosti, regionalizacija, regionalni razvoj, Hrvatska

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<sup>1</sup> Prikazani rezultati proizašli su iz znanstvenog projekta (Ljudski potencijali i ekonomski razvoj Hrvatske, br. 081-0811403-1409), provedenog uz potporu Ministarstva znanosti, obrazovanja i športa Republike Hrvatske.

<sup>2</sup> Redoviti profesor, Sveučilište u Rijeci, Ekonomski fakultet, Ivana Filipovića 4, 51000 Rijeka, Hrvatska. Znanstveni interes: teorija i politika ekonomskog razvoja, regionalni razvoj, ekonomska politika, industrijska politika, razvoj ljudskih potencijala. Tel.: + 385 51 355 111. Fax: + 385 212 268. E-mail: nkaraman@efri.hr.

<sup>3</sup> Viši asistent, Sveučilište u Rijeci, Ekonomski fakultet, Ivana Filipovića 4, 51000 Rijeka, Hrvatska. Znanstveni interes: razvoj ljudskih potencijala, obrazovanje i ekonomski razvoj, regionalni razvoj. Tel.: + 385 51 355 111. Fax: + 385 212 268. E-mail: zjezic@efri.hr.