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XVIII. MEZINÁRODNÍ KOLOKVIUM O REGIONÁLNÍCH VĚDÁCH
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Assessment of regional development in the selected EU countries in the context of Europe 2020 Strategy

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CONTENT

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MOTIVATION AND AIM OF PAPER

- The economic, social and territorial disparities in the level of regional performance are a major obstacle to the balanced and harmonious development of the regions, but also of each country as well as a whole EU.
- Through the Cohesion Policy, the EU aims to reduce the regional inequalities and support lagging states and their regions to catch up with the rest of the EU members.
- The crisis has had a major impact on regions and cities across the EU. The positive tendencies in the narrowing of regional disparities have stopped.

- In June 2010, the EU has adopted Europe 2020 Strategy.
- In period 2014-2020, the ESIF within EU Cohesion Policy are an increasingly important means of achieving the objectives of the Europe 2020 Strategy.

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MOTIVATION AND AIM OF PAPER

- The approach to evaluation of regional disparities is *not uniformed*.
- Most existing approaches use several disparities indicators that are processed by different less or more sophisticated mathematical and statistical methods.
- Alternative and not broadly extended approach represents *multicriteria decision-making methods* (e.g. AHP, TOPSIS, VIKOR).

- ***The aim of the paper is to evaluate and compare the level of regional development in the EU selected countries (Czech Republic, Poland, Slovakia) in the period 2010-2013 according to Europe 2020 Strategy indicators by utilizing the VIKOR method.***

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METHODOLOGY OF PAPER

Stage1 Define the model

- Select the appropriate MCDM methods to evaluate the level of regional development.
- Define the model of research problem – criteria and alternatives.

Stage 2 VIKOR

- Start VIKOR procedure using the equal weights.
- Determine Sj, Rj and Qj.
- Rank the regions according to distances to ideal solution

Stage 3 Interpretation

- Comparison of regions' ranking in the years 2010, 2011, 2012, 2013.
- Comparison of regions' average ranking 2010-2013.

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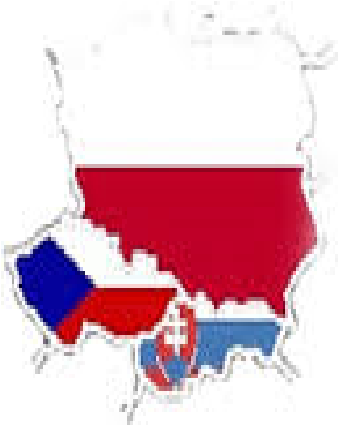
METHODOLOGY OF PAPER – Database

Table 1 Data availability for the Europe 2020 Strategy headline indicators (EU-27)

Headline indicator	Data coverage at NUTS 1 level	Data coverage at NUTS 2 level
Employment rate, group aged 20-64 (%)	2000-2013	2000-2013
Total intramural R&D expenditure (GERD) (%)	2000-2011	2000-2011
Greenhouse gas emissions (index)	1991-2012	Indicator is not currently available
Share of renewable energy in gross final energy consumption (%)	2004-2013	Indicator is not currently available
Primary energy consumption (1000 toe)	1990-2013	Indicator is not currently available
Persons aged 30-34 with tertiary education attainment (%)	2000-2014	2000-2014
Early leavers aged 18-24 from education and training (%)	2002-2014	2000-2013 Indicator is available with limitation
People at risk of poverty or social exclusion (%)	2005-2013	2005-2013 Indicator is available with limitation



Source: European Commission, 2007, European Commission, 2010, Eurostat, 2014; author's processing, 2015

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METHODOLOGY OF PAPER – VIKOR method

- **VIKOR method** determines the compromise ranking-list, the compromise solution and the weight stability intervals for preference stability of the compromise solution obtained with the given weights. It introduces the multicriteria ranking index based on the particular measure of *closeness to the ideal so*lution.

- ***The first step*** is to determine the best f_i^* and the worst f_i^- values of all criterion functions.

$$f_i^* = \max_j f_{ij}, \; f_i^- = \min_j f_{ij}.$$

- ***Second step*** is to compute the values S_j and R_j:

(In case of this paper, weight of criteria are equal ; w_j=1)

$$S_j = \sum_{i=1}^{n} w_i (f_i^* - f_{ij}) / (f_i^* - f_i^-) \qquad R_j = \max_i \left[w_i (f_i^* - f_{ij}) / (f_i^* - f_i^-) \right]$$

- ***Third step*** is to calculate the values Q_j:

$$Q_j = v(S_j - S^*)/(S^- - S^*) + (1-v)(R_j - R^*)/(R^- - R^*)$$

$$S^* = \min_j S_j, \; S^- = \max_j S_j \qquad R^* = \min_j R_j, \; R^- = \max_j R_j$$

- ***Last step*** is to rank the alternatives, sorting by the values *S, R* and *Q,* in decreasing order. The best alternative *Q(a')* is the best solution with the minimum of Q_j.

Year		2010		2011		2012		2013		Average Qj	Average rank
Code	Region	Q_j	Rank	Q_j	Rank	Q_j	Rank	Q_j	Rank		
CZ01	Praha	0.000	1	0.000	1	0.000	1	0.000	1	0.000	1
CZ02	Střední Čechy	0.535	5	0.491	5	0.567	7	0.577	7	0.542	5
CZ03	Jihozápad	0.586	7	0.543	6	0.546	6	0.552	5	0.557	7
CZ04	Severozápad	0.986	26	0.986	27	1.000	28	0.993	27	0.991	28
CZ05	Severovýchod	0.591	8	0.605	9	0.666	11	0.646	9	0.627	9
CZ06	Jihovýchod	0.480	4	0.458	4	0.429	4	0.372	3	0.435	4
CZ07	Střední Morava	0.682	10	0.614	10	0.580	8	0.599	8	0.619	8
CZ08	Moravskoslezsko	0.661	9	0.578	8	0.663	10	0.743	16	0.661	10
PL11	Łódzkie	0.711	15	0.708	13	0.723	15	0.725	14	0.717	15
PL12	Mazowieckie	0.343	3	0.363	3	0.367	2	0.371	2	0.361	2
PL21	Małopolskie	0.558	6	0.555	7	0.539	5	0.561	6	0.553	6
PL22	Śląskie	0.748	17	0.758	17	0.731	16	0.741	15	0.745	16
PL31	Lubelskie	0.879	23	0.893	23	0.860	22	0.865	22	0.874	23
PL32	Podkarpackie	0.683	11	0.696	12	0.669	13	0.718	13	0.692	12
PL33	Świętokrzyskie	0.750	19	0.832	20	0.756	18	0.748	17	0.772	19
PL34	Podlaskie	0.735	16	0.739	15	0.659	9	0.670	11	0.701	13
PL41	Wielkopolskie	0.687	12	0.695	11	0.666	12	0.666	10	0.679	11
PL42	Zachodniopomorskie	0.993	27	1.000	28	0.905	24	0.914	24	0.953	26
PL43	Lubuskie	0.997	28	0.975	26	0.964	26	1.000	28	0.984	27
PL51	Dolnośląskie	0.749	18	0.770	18	0.750	17	0.763	18	0.758	17
PL52	Opolskie	0.908	24	0.851	21	0.825	21	0.828	21	0.853	22
PL61	Kujawsko-Pomorskie	0.878	22	0.884	22	0.782	20	0.819	19	0.841	21
PL62	Warmińsko-Mazurskie	0.867	21	0.932	24	0.967	27	0.970	26	0.934	25
PL63	Pomorskie	0.699	13	0.714	14	0.694	14	0.709	12	0.704	14
SK01	Bratislavský kraj	0.334	2	0.325	2	0.394	3	0.433	4	0.371	3
SK02	Západné Slovensko	0.708	14	0.758	16	0.780	19	0.824	20	0.767	18
SK03	Stredné Slovensko	0.792	20	0.774	19	0.861	23	0.875	23	0.826	20
SK04	Východné Slovensko	0.911	25	0.936	25	0.919	25	0.938	25	0.926	24

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CONCLUSION

- After four years of the Europe 2020 implementation, 14 regions had better position in the year 2013 in the comparison with the year 2010 when the biggest improvement in regional development in the context of Europe 2020 was recorded in Poland. Contrary, 9 regions achieved the worse positions when the insufficient level of regional development could be observed in Slovakia. Five regions showed the same level of development in the year 2013 as in the year 2010.
- The regional disparities in the level of development have still persisted between Czech regions on the one hand and Polish and Slovak regions on the other hand.
- The results of VIKOR analysis confirmed that since the year 2010 NUTS 2 regions with capital city (Praha, Bratislavský kraj, Mazowieckie) together with Czech region Jihovýchod have had significant and different socio-economic positions from the other regions (especially Czech region Severozápad, Polish regions Lubuskie, Zachodniopomorskie, Warmińsko-Mazurskie and Slovak region Východné Slovensko) .
- Implementation of the EU Cohesion Policy programmes and the effective use of ESIF will play key roles in regions' development in the context of Europe 2020 priorities in the next years

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Question/suggestion…

THANK YOU FOR YOUR ATTENTION!

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