

# Monitoring of regional development dynamics with use of process analysis

## *Monitoring dynamiky rozvoje regionů s využitím procesní analýzy*

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**Abstract:** From the present course of solution of the project "Creation of diagnostic methods set for monitoring efficiency of support from the EU funds" knowledge, it resulted that the regional development potential, if you like the potential of regional development, is necessary to be perceived as a dynamic social-economic category, on which many influencing factors have an effect and is which in the region connected with space, in which many quantitative and qualitative processes take place. In the solved project, it is dealt with a complex conception of all factors influencing natural potential and processes connected with it, demographic, economic and social potential, and processes which work upon the change of this potential. On the base of the hitherto selected criteria, it has been possible to compare the social-economic development and economic efficiency of particular districts, resp. regions, and their following aggregation in the frame of regions of cohesion.

**Key words:** region, structural supports, development potential, development indicators, process analysis

**Abstrakt:** Z dosavadního průběhu řešení projektu „Vytvoření souboru diagnostických metod pro sledování účinnosti podpor z fondu EU“ vyplynulo poznání, že regionální rozvojový potenciál, resp. potenciál k rozvoji regionu je zapotřebí vnímat jako dynamickou sociálně ekonomickou kategorii, na kterou působí řada ovlivňujících faktorů a která v regionu souvisí s prostorem, v němž se uskutečňuje řada kvantitativních i kvalitativních procesů. V řešeném projektu jde o komplexní pojetí všech faktorů ovlivňujících přírodní potenciál a procesy s ním spojené, demografický potenciál, ekonomický a sociální, a o procesy, které působí na změnu tohoto potenciálu. Na základě dosud vybraných kritérií bylo možné porovnat sociálně ekonomický vývoj a hospodářskou výkonnost jednotlivých krajů, resp. regionů, a s jejich následnou agregací v rámci regionů soudržnosti.

**Klíčová slova:** region, strukturální podpory, rozvojový potenciál, indikátory rozvoje, procesní analýza

## INTRODUCTION

During the solution, it is dealt with a gradual fulfillment of several aims:

- to create a broad data base, which will enable complex characteristics of regions,
- to determine a methodical procedure, which will enable a qualified selection of indicators which have the most important influence on the prosperity of regions, and at the same time it will enable to set their weights (of significance) in the given process,
- to evaluate and compare the present state of regional development,
- to evaluate development presumptions of relevant indicators which will influence further the development of regional potential.

## METHODOLOGY

In selection of indicators which could be used for evaluation of stability and possible prosperity of regions, it was stemmed from the criteria which characterized:

- summary description of regions
- economic situation in a region
- human potential in a region
- social level in a region
- regional infrastructure
- state of environment in a region

Then from thus determined groups of indicators, indicators were selected by the help of a multidimensional statistic analysis the influence of which in the total prosperity of regions can be considered as the strongest. As the most suitable for fulfillment of the

given aim, the method of main components analysis was chosen which enables a reduction of excessive number of variables, respectively compression of information in a smaller number of non-measurable hypothetical magnitudes with as little as possible loss of information which is contained in the monitored attributes. By the help of this method, the most influential indicators can be selected and weights of their importance in the model can be determined. On the base of this weight, then an index was formed which characterizes the position of region from the given point of view.

At the same time, the selected indicators were evaluated:

- *from the viewpoint of indicator stability* – it regards indicators showing very small or almost no changes (acreage, relief and so on) in time. Though these indicators do not show changes from the time point of view, nevertheless, they are very important from the viewpoint of comparison of regions;
- *from the viewpoint of indicator variability* – some indicators show a high variability both in comparison in time in the particular regions, and mainly in the inter-regional comparison in the same period. From this point of view, an analysis for determination of causes of intra-regional differences is very important;
- *from the viewpoint of development trends* of the particular indicators in regions. In the first stage of the analysis, the average growth coefficient was used for comparison which characterizes the annual average increase or decrease of the indicator in the monitored period and provides in this way a short information about the development of the particular indicators;
- *from the viewpoint of determination of prognoses* by the means of values of the relevant indicators of regional development in horizon of minimally three years.

With use of the mentioned criteria, respectively indicators, it can be stated that the monitored areas NUTS 3 do not show significant differences and if it regards for example the application of the criterion, if you like the summary indicator GDP/inhabitant, the dispersion of its values is relatively narrow, however, with its value (c. for the CR, 62% of the EU 15 average) it fulfills the referential value of the Objective 1 (up to 75% of the EU 15 average) in such a way so that it could use financial means from the EU structural funds.

If we range other indicators in the evaluation, especially of social character, e.g. unemployment rate,

it is possible to trace major differences and to mark problem regions.

However, in selecting criteria for monitoring of the regional potential, it turned out that for objective monitoring of regional development, it will not be possible to make do with only simple statistic means characterizing the development of criteria, but that it will be purposeful to use a method which would cover the dynamics of the monitored development in certain matter-of-fact and time connections. This method can be operationally named *process analysis* or the analysis of the selected social-economic and demographic processes. Under the conception of ‘process’ in the connection with process analysis, we understand a certain dynamic development, if you like a *quantitative change taking place in time when inputs and outputs are gradually changed to results and impacts influencing the level of a region*. In this connection, it will be necessary to monitor the growth of the selected criteria in time development and to notice *a rebirth of these growth values in qualitative change*. It can be presumed that structural changes taking place in the CR regions will continue with various intensity in particular regions and it will be necessary to adopt measures to sustain development processes in the region.

Development potential does not represent a category with a homogenous characteristic but on the contrary, it regards a synthetic category, aggregating the assorted conditions and factors.

If it stemmed from the aim to determine an objective description of development potential in connection with use of structural subsidies of both the EU and national level, then the primary task is partly to define the development potential and partly to quantify it in such a way so that it could serve as one of the important criteria in division of these supports regarding their efficient use.

Thanks to variability of the particular regions, development potential is not always identical and is not created by the same factors, conditions and characteristics. What can be a real development potential in case of one region, does not have to mean a possibility of development in other region. In this sense, we can speak (see the scheme 1) in case of development potential about

- individual indicators,
- general indicators.

Indicators of individual character represent development factors, which are typical, unique only for the given region, and in other regions they either do not occur at all or their function and influence are not significant. Relevancy of these indicators is individual and it cannot be generalized, nevertheless, in condi-

tions of a concrete region, they cannot be left out and it is necessary to admit the weight which they have for the given region.

By contrast, indicators which occur in all regions represent a certain rate of generality and also a certain possibility of an interregional comparison. Here, above all the indicators of the matter-of-fact character can be included – economic, social and descriptors of conditions. At the same time in this group, also factors of general character can be ranked, represented by the state economic policy, social policy, foreign-trade policy, legal frame and so on. All these influences, despite of their significance, cannot be quantified unambiguously in connection with the development potential and expressed in that way a rate of their influence. It can be supposed that their influence is real in its substance.

In setting the development potential, it is purposeful to focus mainly on the group of such indicators which fulfill the above mentioned conditions of significance, generality and quantifiability at the same time. In concrete conditions, it would then be necessary to enlarge indicators of general dimension by indicators of individual character.

In the frame of the group of general indicators (see Figure 1), it is necessary in connection with the development potential to distinguish whether it regards indicators of development conditions (indicators of conditions which are possible to use), or indicators which express the use of these conditions (the degree of

usage). Both these parts of the development potential have to exist at the same time so that we can speak about the development potential. Conditions, which are not used, and skills, which are not or cannot be realized, do not fulfill in themselves the substance of development potential.

In selecting indicators which could fulfill the above determined schema, it is possible to issue from these principles:

- The resulting collection of indicators must not be too large so that transparency of the particular indicators was not affected and so that their easy monitoring and evaluation were enabled. A too large collection could lead to ambiguous conclusions resulting from too big number of “results” (positive, negative, indifferent), which would be necessary to sort further by their significance, influence and so on. Therefore, a contradictory procedure is more logical, when on base of a very large collection of indicators characterizing both economic and social, entrepreneurial and other parameters, a narrower group of indicators is selected, which can be considered as the most significant for the development potential.
- In the resulting collection, both significant characteristics of condition of region development – indicators of descriptive character – descriptors and indicators expressing use of these conditions should be represented. A completely unambiguous priority belongs to the “quality” of human potential – i.e. its

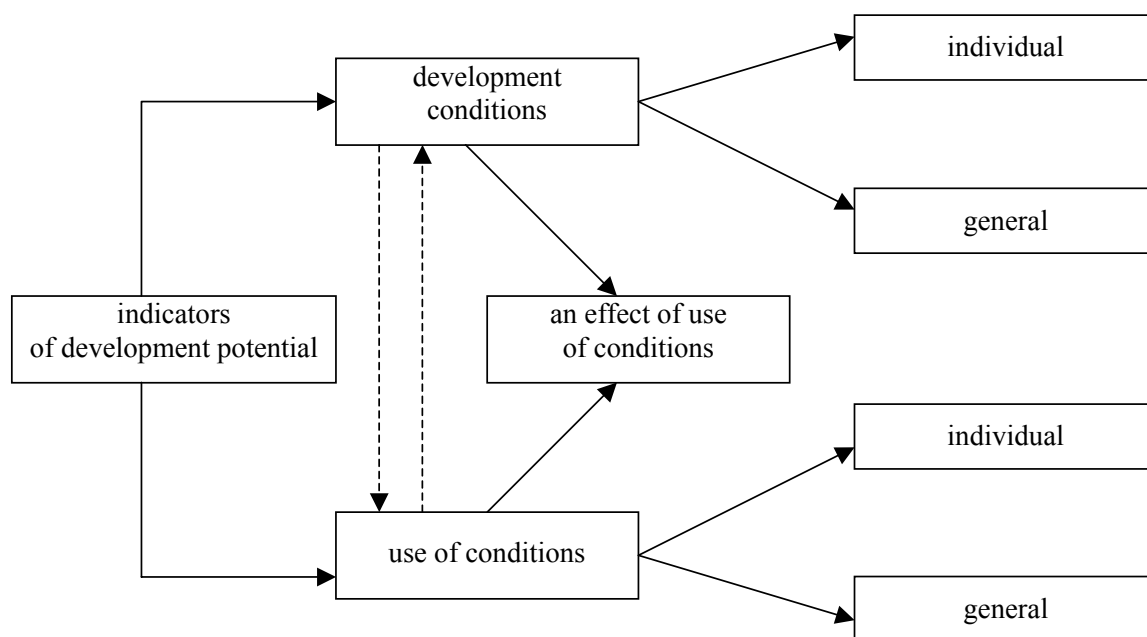


Figure 1. Categorization of indicators characterizing development potential

extent (labour force numbers) and abilities (education, age, structure). This “human potential” creates an active part of development potential because its task in development of regions is not only the use of current conditions but also it should be also creation and search for new development conditions. The primary attention should be, therefore, paid in connection with regional policy, if you like a policy of regional development, to human element.

With this purpose, it will regard e.g. *monitoring and evaluation of development of the region*, which is connected with qualitative changes in the region, and is accompanied by processes, the course of which has positive effects on the region development quality. It is obvious that together with monitoring of quantitative changes in the region, it will be possible to evaluate its development also by its qualitative side result of which will be a growth of some monitored values. For investigators, it means to create the system of financial and statistic information about a realization of chosen measures in the region.

Among development qualitative processes, which can influence significantly the regional potential and which can be described by means of an analysis process, it is possible to rank:

– *growth of the standard of living quality of the region inhabitants* and to perform a comparison with fulfilling so-called global aim of the relevant region which is connected with sustainable development of the given area. Global aims and the connected specific aims are formulated in the Common Regional Operational Program, which includes development priorities of 7 CR regions, which will be supported from structural funds in the frame of the Objective 1. On this account, the greatest emphasis will be put on the development of GDP/inhabitant, measured according to the Czech Statistical Office (CSU) methodology in market prices and purchasing power parity.

## CONCLUSIONS

Regarding monitoring of countryside and multifunctional agriculture development, which is in principle the base of the CR agrarian policy after the accession into the EU, it will be necessary to issue also from monitoring and evaluation of the global aim formulated in the operational program “Agriculture”. It is focused on improvement of inhabitants’ life conditions in rural space and in agriculture, on increase of production competitiveness and strengthening of its non-production functions. With it, the support

of investment in technology modernization, human capital and creation of work places is connected. The trend which the EU proceeds leads to the integrated development of countryside which does not dispense of stabilization of rural settlement in the way of sustaining especially young inhabitants in the countryside and without facilities of municipalities with civil and technical infrastructure. To this development, also the selection of processes corresponds, to which it will be necessary to pay a bigger attention in research and development activity. Among other economic processes which can affect significantly the growth of regional potential, there belongs:

- *development of entrepreneurial environment*, in which a structure and development of small and middle enterprises creates a network, which has not only production importance in a process of diversification of activities but above all social significance from a viewpoint of creation of work places and viewpoint of activation of “economic atmosphere” in a region given by their ability of fast adaptability to market demands;
- *development of education and qualification structure*, without which it is not possible to realize structural processes successfully;
- *increase of economic yield of the region*, tax yield, decrease of indebtedness and so on;
- *development of tourism* which contributes to stabilization of incomes and employment in the region;
- *development of investment including foreign capital input*, i.a. increase of investment shares in processing industry;
- *development of information security and communication security*, connection to the Internet, TV and so on;
- *development of infrastructure in the region*, growth and maintenance of roads, railways, bus lines, supermarkets;
- *change of production structure, respective restructuring process*;
- *protection of environment*, growth of resources volume for the environment, land protection, measures for waste management and so on;
- *development of an absorptive ability of a region of EU resources* given by an amount of admitted projects and volume of money.

In monitoring of the course of this process, a monitoring system will be used together with process analysis, by means of which it will be possible to investigate and evaluate an efficiency of invested resources, it means whether the gathering of Czech resources and resources from the EU is realized in a harmony with the adopted intentions and rules. From the monitoring

and evaluation of the absorptive ability of a region of these resources it can be estimated:

- an evaluation of factual and economic impacts of efficiency of adopted measures and invested financial means,
- a check of the course of solution and fulfillment of set indicators, it means “a gradual fulfillment of target values” quantified in projects, a security of compatibility with valid legislative norms of the CR and the EU,
- a proposal of evaluation results and security of outputs for the EU bodies and competent institutions in the CR, and
- a signalization of negative phenomena of matter-of-fact and financial character, including security of a feedback for a remedy of these phenomena.

As the determined development processes are based especially on the support of development of internal social-economic factors in the region and on the contrary on the elimination of negatively functioning factors, it will be necessary to focus first of all on the monitoring of quantitative changes in economy and competitiveness of the region as a whole. In evaluation

of reached effects, if you like impacts, the indicators will be focused on these processes, which will influence the final effect and long-term effects influencing a concrete region.

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