ANALYSIS AND PLANNING OF REGIONAL DEVELOPMENT - CONTEXTUAL VARIABLES TO DEVELOP A MODEL FOR MONITORING FINANCIAL INDICATORS AT REGIONAL LEVEL.

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ABSTRACT

Application of quantitative techniques in regional analysis can provide an understanding of both the change in time of regional economic performance and the interdependencies between economic sectors, including the use of projections to test the potential future development of the region. Qualitative techniques allow also the explanation of the reason for regional development patterns occurring in a region and the improvement of analysts' ability to reflect on the results and economic opportunities for a future based on collective experience, wisdom and judgment of the actors in region economies.

Keywords: regional development, planning, regional analysis, regional competitiveness, strategic infrastructure

JEL classification: G3,G32

1.Regional analysis showed primary role of *industrial clusters* as driver of regional development, but considering the economy as a whole, or economic sectors and large firms as *independent of each other*. In fact, any regional economy is immersed in a *maze of links, fluxes and multi-sector factors*, each economy being specialized and playing a key role in defining future structure and shape of the economy.

Using *input-output analysis* helps the deduction that clusters in industry is one of the tools available to regional economic analysis providing a better understanding of *the relations or links* that are the industries of the region. While inter-sector financial flows and other flows is an important indicator of competitiveness, these factors do not explain complex or profound structural elements that contribute to generating competitive advantage of firms, industries or industry clusters within a region.

Economic base theory shows how often there is a small number of companies or business that plays a *pivotal role* in defining the economic structure, performance and development of the region, many of these pivotal industries ranging ***networks or clusters***, these clusters integrating core industries network of bidders / vendors and basic economic infrastructure, supporting regional development and competitiveness in competitive markets. To maximize the economic development potential of a region it is necessary, however, to know which factors in certain industries contribute to competitive advantage, to measure their *strengths and weaknesses* and to *identify the relationships and interdependencies* between factors in supporting the development of individual industries or industrial cluster. However, due to increased uncertainty and competition in the business environment in the era of globalization and rapid change, it is necessary to develop more *rigorous methods for regional risk assessment*, which is specific to the region, faced with rapidly changing conditions and competitive advantage.

There were developed more analytical techniques necessary to measure and compare the characteristics of industries and clusters and relations between these techniques which involve some form of **multi-sector analysis (AMS),** this method representing an eclectic instrument developed from different quantitative and qualitative analytical techniques, using *matrix analysis tool.*

2. Multi-sector regional analysis: interdependencies and hierarchies

To use AMS, it is necessary to establish criteria C_i ,and comparing such criteria for several sectors, industries, R_j , for the four elements of analysis, *strengths, T, Opportunities, A, weaknesses, S, danger, P* **(TOSP model)** simplified this process is shown in table.

1.In matrix cells are the specific elements of the analysis, characteristic of a specific criterion in a given branch, region, all cells are characterized by the combination of two parts, one specific to the internal environment, the other to the external environment of the branch.

Table no. 1.

R_j / C_i	1	2	3	…..	
1	O,S				
2					T,P
3			T,O		
…..		S,T			
m					

By comparing the results from a particular region or an industry can be identified critical issues highlighted by the 4 elements of the analysis affecting performance of a region. In this way an appropriate strategy can be developed to improve negative factors or strengthen on the positive.

Matrix theory is used when a complex set of information representation and to simplify notation, when dealing with a large number of simultaneous equations, AMS matrix using some applications to develop a number of relevant indicators.

Factor analysis and structural analysis can be used to identify factors contributing to competitiveness and development of a region, an application of which is *developing indicators* that allow comparisons between industries or regions according to criteria represented in the table. 2.

Table no.2.

	Sectors (Si)					
	1	2	n	$\sum$		
a	0	1	0	1	15	0,07
b	1	3	0	1	15	0,27
c	0	0	2	2	15	0,14
d	2	4	3	9	15	0,60
m	2	4	6	12	15	0,80
$\sum$	5	12	11			
Max $\left(\sum C_m = 5\right)$	25	25	25			
Index	0,20	0,48	0,44			

The advantage of such a matrix is that it can be used to provide a common basis for comparing interregional factors contributing to competitiveness and regional development, in order to calculate an *aggregate index*.

AMS originated in two areas of research: theory of regional input-output matrix and structural analysis.

Regional input-output models describe the transactions between a region and the world, and of the activities within the region. These models generate *an index or a multiplier rate* which measures the total impact effect of an increase in demand for employment or income. It can also be used to predict or forecast future performance potential impact of a region's economy and changes in inter-industry transactions.

Structural analysis performs the collection and processing of qualitative data set, allowing the analyst to describe a system using *matrix that interconnects all system elements*. The method allows to identify and analyze relationships between key variables, ordered hierarchically, which are the investigated system structure, ie the network of relationships between system elements, the structure maintaining the permanence of the system. In practice, structural analysis is used in two main ways:
-in researching the decision-making on *key variables* that relate to the structure and size of the system;
-in making predictions.

AMC leverages key elements of analytical techniques presented summary above, the main instrument of AMC as ***matrix***, which measures and analyzes different variables of economic sectors, which includes a regional economy, represented in the table. 3.

Table no.3

S / C	1	2	3	4	….	n	∑ *scor criteriu*	∑ max *scor sector*

a								
c								
d								
….								
m								
∑ *scor simbol*								
∑ max *scor criteriu*								

-where:
S = regions, sectors, industries;
C = evaluation criteria.

Using this basic *matrix structure* allows the development of tools for regional analysis by applying AMC framework. Number of selected sectors depends on the degree of detail desired, it is advantageous if the number of sectors corresponding input-output analysis, and can be made in this way, comparisons between input-output tables and matrix AMC.

A significant methodological problem of AMC is the *weighting of factors*, not all factors measured by this technique with the same weight in all industries, in many cases there are significant differences between sectors in terms of importance of factors. In this respect, different weights are applied in the assessment factors used, depending on *the importance and priority values attached to various factors*. For example, you can use a scale from 1 to 5 on importance factors, and based on values, grades given to each factor attached an industry, by experts, determine the average grade for different factors in each industry, and can be get the average for each factor in the industrial sector. The share is multiplied by the initial notes to obtain the weighted grade.

Multi-criteria analysis, AMC, offers policy makers an alternative when progress toward multiple goals can not be measured by one criterion, ie monetary value and can be used as a support tool to evaluate the results of a project based on a predetermined set of criteria or variables. AMC is widely used in decision-making processes to the environment in which a number of criteria, often conflicting, need to be taken into account as part of a general process of decision making. One of the simplest forms of AMC is ***the matrix analysis of the objectives, AMAO***, which evaluates the results of alternative projects based on different criteria, such as transport plan, involving a complex linear programming.

Table no. 4. shows the basic matrix used by AMC, grade criterion-option, X_{ij} as being a measure of the strength of the relationship between each choice *i*, and each criterion j, evaluated for all cells *ij* of the matrix. Notes for each Xij are aggregated on a horizontal line, scoring option note, NO:

$$NO = \sum_{i=1}^{m} Xij \tag{1}$$

The highest grade (score) expresses the best or worst option, depending on the scale of measurement. It is unusual that all criteria to have the same weight, for example, life-threatening problems will probably have a higher rating in the risk analysis.
To harmonize the importance of different criteria are applied weights ω_{ij} to each criterion weighted scores Xij, NOP, is calculated as follows:

$$NOP = \sum_{i=1}^{m} \omega_j \times X_{ij} \tag{2}$$

Table no.4

	Option				
	1	**...**	**i**	**...**	**n**
1					
...					
j			$\mathbf{X_{ij}}$		
...					

m					$\sum_{i=1}^{m} Xij$

This basic technique can be used for making decisions and assessing prospective AMC advanced applications using complex mathematics, particularly when the criterion is considered in tiers. AMS can be used to support the following aspects of regional development potential and performance:
-identify and assess factors that contribute to supporting the growth of regional economic competitiveness, and core competencies, strategic infrastructure and risk management;
-identify new opportunities and markets for regional economic development, involving both commercial development potential and development industries sectors intersect.

In the context of regional economic development *core competencies* relate to the specific or unique ways of the areas to use resources, technology, skills, and infrastructure and so on, in order to achieve competitive advantage. Essential skills assessment requires *the development of two indicators*, namely:

1.indicator measuring the competitiveness of the economy;

2.indicator measuring core competencies of the region.

Systematic and evolutionary research and analysis essential skills that contribute to regional economic competitiveness and capacity allows the deduction and establishing a measure of ***core competencies***, allowing the annual comparative performance of nations and regions, in particular, of those factors that are powers applicable to the essential regional economic development.

3.Conclusions

Strategic infrastructure plays a critical role in economic development and competitiveness of regions, even minor weaknesses of that infrastructure can have a significant impact on the competitiveness of industries and organizations involved in the development of the region. Through analyzing the indicator factors can be identified strategic infrastructure factors contributing to competitiveness and compare these factors for different regions. Identifying key factors has important strategic infrastructure, particularly for investors seeking locations for industries that can capitalize on these advantages.

To identify economic development opportunities within the region multilateral sectors is necessary to use *input-output tables* derived from input-output analysis to identify new opportunities for growth and investment in the region, analyzing business ties between industry, *mix and magnitude relations as indicators of the extent and diversity of the regional economy*, highlighting its ability to support exports and new economic development activities.

Operation of AMS, by deriving various indicators, involves a number of processes, including choice of data collection tools and protocols design, data analysis and interpretation.
Data collection can be done in three ways: general surveys, expert panels, combining the two.
AMS implementation on a regional economy consumes time and resources, *the stages involved in making this process as follows*: identify the factors and problems of development, development of the questionnaire and panel type, perform the assessment questionnaire and panel data analysis using statistical computer programs, evaluation of external data processed, which may lead to changing some of the data compiled and used for AMS.

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