FORECAST REGIONAL DEVELOPMENT DEPENDING ON TERRITORIAL DISTRIBUTION OF INDUSTRIAL SUB-BRANCHES

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ABSTRACT: The paper renders evident the role of the forecasting by elaboration of prognosis studies concerning the territorial distribution of the industrial sub-branches and the modality in which this distribution determines the development degree of a region. Also the principles which must lie at the basis of the territorial distribution of the industrial sub-branches are presented, so that the attenuation of the regional development gaps is tried.

KEY WORDS: forecasts, industrial sub-branches, development of regions

The most branches influenced by technical progress are industry and its sub-branches. As a result it appears the necessity a detailed study of market demand for industrial products. Without of such a study, the whole branches may go bankrupt or enter into crisis.

To prevent the occurrence of such phenomena, forecasting studies are directed towards the analysis:

a. of evolution technologies trends of certain industrial branches:
   - any progress involves the reduction of specific consumption of raw materials, energy, fuel and labour, with direct consequences on the cost and products price. Therefore, any delay in introducing of technologies produces the reduction of the competitiveness of such products.

b. of changes in the range of machines and equipment used in industrial branches and sub-branches:
   - in the sense of discovery of high-efficiency machines and with the most reduced specific consumptions for a piece or measure (horse power).

c. of development of market demand, which refers to:
   - internal structure of the market (with the complex character by the diversity of industrial products, of customers or by the market location);

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• dynamic capacity;
• spatial distribution.

The market for industrial products can’t be analyzed generally, and investigations must have a permanent and systematic character.

The market structure of industrial products is studied on the basis of segmentation and population typology.

The segmentation refers to all techniques of population separation into groups by income or consumption preferences, while the typology includes all the techniques and methods reuniting the components into larger type, depending on certain characteristics.

Depending on the time horizon the forecasts which refer to industrial activity can be:

• short term forecasts: for the knowledge of current developments of market phenomenon these projections facilitate operative management of a business or industrial enterprise branches.
• medium term forecasts: guidelines that serve to substantiation of some development decisions of the branch, to researches and new guidelines according to the market demand, to decisions concerning the investments and readjustment of some sub-branches.
• long range forecasts: refer to duration tendencies of the market substantiating the strategy of sub-branches development and almost complete change of products list.

While short-term forecasts are based on short term factors the medium and long large forecasts are influenced by tendentianal and structural factors.

The time horizon in the industrial forecast represents the year or the proper time. Starting from the medium average for renewal of industrial products we can determine the optimal period for forecasting.

In the conditions in with the renewal of products is realized at the intervals of time more and shorter, the forecast horizon can be increased if the forecast period is constant. This occurs because the renewal of products leads to change the relation between the forecast horizon and the period of products renewal. Of course that the forecast seeks modelling the future as more as possible to what will happen, though the evolution is given under the form of possible variants, each of them having a maximum and a minimum in the so-called range forecasting. These limits are influenced by the forecast horizon, namely by the distance between the minimum and maximum limits which will increase as this horizon departs from the moment when is worked out the forecast.

Analysis of the industry as a branch of the economy is made not only quantitatively (its size, its rate of rise, productivity) or structurally (industry share of total branches to show the level of industry specialization of a country) but also in terms the location in the territory. In fact, in the territory is formed the structure of the industry representing the requirements of sub-branches confronted by the other sub-branches. Therefore, there are sub-branches which, to be economically efficient, require reciprocally in the same territory as a criterion of producing branches - a consuming branches.
The territorial distribution of industry involves the implantation and development of a certain its sub-branches in its administrative divisions of the country (provinces, counties, cities, villages). This is necessary because the resources aren’t uniformly distributed in the territory.

As a result we will start from extra economical decision (political for example), achieving a rational distribution, which not to be confused with a uniform distribution. Any policy in this field is valid only for eliminating of economic gaps development between the provinces, counties, who may have social consequences (complaints, the depopulation of the area, etc.).

The main objectives of industrial location are connected with the territorial resources valorisation the ensuring of a consumable production in this territory, using the work force simultaneously with the natural environment protection. In economic terminology of industrial distribution it is matter, therefore of an industry optimum (though difficult to calculate), determined on the basis of partial indicators such as national income produced in the industry per capita. These partial indicators are compared with average level per country, allowing the classification of provinces or counties. The partial indicators can be calculated on the total industry or each sub-branches in part (in case of products whose existence is absolutely necessary in the analyzed territory).

On the basis of territorial distribution of the industrial sub-branches must be the following principles:

a. Appropriate investment policy:

It was misunderstood by the state interference before 1989, when they located the industrial objectives according to political criteria and not socio-economic criteria. The idea of harmonious development of all counties was sustained even at the expense of economic efficiency.

In the new framework, created by the transition to market economy, the special committees ONUDI resolve the problem of investment in the territory starting of the question: when and in what stage of development a country can begin a policy of increasing of the less developed regions?

Of course that at the beginning of modern industrial starting-up, the poverty will still preserve in the retarded provinces (regions), because there aren’t sufficient resources for its inclusion in the development avalanche. According to the experts opinions in the first stage of starting-up must be created centres of industrial development and, as such, the first investment will be concentrated as pioneer investments, which ensures high efficiency and achieve of high profits, necessary to the infrastructure development in the territory, as a basis for further development of industry in these regions.

Development of infrastructure (railways, roads, airports, ports, etc.) in all regions not only creates employment and income, but also equity of the citizen’s access to civilization. The actual economic situation in which Romania is found the retechnologization should start in branches producing higher profits and covering major sections of the demand: food industry, light industry, industries producing goods of wide circulation, agricultural machinery, electronic and electro technical apparatus.
The location of industrial projects in less developed provinces or counties should be done in those branches that require little infrastructure investment (leather, clothing, food) and only after the accumulation of capital for infrastructure development we can proceed to develop industries with expensive infrastructure (metallurgical industries, chemical, petrochemical, etc.).

So, in the industrial start-up phase have priority the sub-branches in which the indicator investments for a work place is low. These sub-branches will determine the increase of the number of work places with direct implications on the decrease of population movement, creating additional income for the population in the area and for the administrative units (taxes, fees). On the basis of industry distribution in the territory lays the efficiency principle which combines the social and economical criteria.

b. Employment available in the territory:
According to changes due to objective and subjective reasons such as follow we analyze:

- mechanization of agriculture (which occurred in a fast tempo making available certain categories of employment);
- introduction of automation technology in industry;
- high birth rate in some counties (especially in Moldova);
- tradition existing in workforce training;
- age structure of population (in case where the young population dominates the peak will industry will be placed, otherwise the objectives of heavy will be placed);
- the culture level of the population (the purpose of calculating the average number of years schooling indicator / capita);
- weight by sex and age groups (in conjunction with the attitudes and inclinations to employment of female population).

c. Valorisation of material resources of the territory:
It is in close correlation with the rate of scientific research in the analyzed territory. This criterion is usually dynamic because the enterprises located lead to the discovery of new raw materials, existing even the witicism that "industries in turn create industries (e.g. electricity industry → power plants, metallurgy → industrial waste processing, etc.)."

Another category of resources which can determine the territorial development and implicitly of the industry with small investment at the beginning are those connected with sub-branches of building materials sub: lime production, ceramics, stone, brick, wood, marble etc.

d. The principle income population:
The location of industrial objectives is necessary to be realized also in the counties don’t dispose of the work factor specially qualified or the abundant raw materials as thus ensure a certain level of income of the population. In these objectives aren’t located in such counties, this fact would cause some social effects: tension among the population, the labour movement, the backwardness in terms of education, etc. In the long term, these social effects become so severe that they impose the location of industrial objectives in all the counties.
In case of location of the industry in the backward territories, two variants of calculation are used on a horizon of 10 to 15 years:

1. the variant of industry location in traditional counties:
   - in all related efforts to achieve this objective, it will take the necessary expenses of population movement from less developed areas in the developed ones as well as the support to the population of backward districts.

2. the variant of industry location in backward counties:
   - the useful effects will be more reduced that in first variant but they will be obtained with much lower economic efforts.

Choosing those least developed counties, where the industrial objectives will be located is realized on the basis of following criteria:
   - the location, first, of light and food industries (because it requires a technical level not too high);
   - the transferring of skilled personnel from traditional centres to the less developed counties.

The fundamental criterion, on the basis of whom the ordering of backward counties is done, is the indicator of industrial gap, calculated as follows:

\[
\frac{PG_i - PG_{i_0}}{PG_{i_0}} = \frac{PG_i}{PG_{i_0}} \cdot (ani)
\]

where:
- \(PG_i\) - annual industrial global production / capita in developed counties (Bucharest, Timis, Brasov, Sibiu, Hunedoara, Constanta);
- \(PG_{i_0}\) - annual industrial global production per inhabitant in under developed counties.

Using this gap can be calculated the rate to be imposed on the county development for it reaches the level of developed counties according to:

\[
PG_i^* = PG_i \cdot (1 + r)^t
\]

After determining the rate \(r\), we will calculate the necessary investment to reach in time \(t\), the economically developed counties.

The necessary investments are determined by the volume of investment resources to ensure the development of industry at with one per cent according to:

\[
\Delta Inv = \frac{\Delta Inv \cdot 1\%}{xK} = \frac{\Delta Inv \cdot 10\%}{xK}
\]

These investments are determined annually, which means that the total volume during \(t\) years will be:

\[
Inv_t = \Delta Inv \cdot t
\]
e. Increase the protection of the natural environment:
   There is a limit beyond which can’t be located in a territory certain industry. This limit is given by achieving a certain level of water, air, soil or noise pollution.

f. Reducing the costs of production and transport:
   It is an important criterion especially for those sub-branches of industry which consumes large quantities of raw materials.

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