Artículo de investigación

Theoretical analysis of forms and methods for society enterprises sustainable development

Análisis teórico de formas y métodos para el desarrollo sostenible de las empresas de la Sociedad

Análise teórica de formas e métodos para o desenvolvimento sustentável de da sociedade

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Abstract

The article is devoted to the theoretical analysis of forms and methods for social enterprise sustainable development. They analyzed the system of an effective functioning of social enterprises. It was shown that one of the key tasks of social sphere regional development improvement is the use of intensive growth factors.

Keywords: social sphere enterprises, economic-mathematical model, production efficiency, social sphere.

Resumen

El artículo está dedicado al análisis teórico de formas y métodos para el desarrollo sostenible de la empresa social. Analizaron el sistema de un funcionamiento efectivo de las empresas sociales. Se demostró que una de las tareas clave de la mejora del desarrollo regional de la esfera social es el uso de factores de crecimiento intensivos.

Palabras clave: empresas de esfera social, modelo económico-matemático, eficiencia productiva, esfera social.

Resumo

O artigo é dedicado à análise teórica de formas e métodos para o desenvolvimento sustentável das empresas sociais. Eles analisaram o sistema de um funcionamento eficaz das empresas sociais. Mostrou-se que uma das principais tarefas da melhoria do desenvolvimento regional na esfera social é o uso de fatores de crescimento intensivos.

Palavras-chave: empresas de esfera social, modelo econômico-matemático, eficiência de produção, esfera social.

Introduction

The most important task facing economic science and practice is the task of the entire economic mechanism improvement for social enterprises. The great importance of this problem makes it necessary to develop more accurate methods of efficiency analysis and planning at different production levels. The knowledge of construction production performance indicators is only a starting point of this problem solution. In order to manage the efficiency of social enterprises, it is necessary to know the entire set of factors under the influence of which the efficiency of production changes, and also to determine the effect of individual

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factors on efficiency dynamics. Economic and mathematical methods are called to solve this problem in the most precise quantitative form (Asheim & Isaksen, 2002; Camagni, 2002; Bandman, 1971).

Among other objects of economic and mathematical modeling, an important place is occupied by economic indicators, the models of which serve as the basis for enterprise analysis, planning, stimulation and management. Every phenomenon, process, reality object is characterized qualitatively on the one hand, and quantitatively on the other, both of these characteristics are interrelated and interdependent. The indicators are referred to the quantitative characteristics of an object - they express the intensity of an object linear property (relation) manifestation. Due to the fact that economic indicators show the intensity of economic process properties, the study of the factors that determine the movement of these indicators is of a great theoretical and practical significance. In this regard, the content of social enterprise performance indicators is disclosed (Porter, 2005; Porter, 2007; Kolosovsky, 1969).

Main part

The general task of the economic and mathematical modeling of social enterprise production efficiency indicators is the following one:

- the determination of the factors causing the movement of the studied indicators;
- the determination of the mathematical dependence of indicators and the factors determining it;
- the determination of studied indicator variation participation on this basis (Gardiner et al, 2004; Porter, 1998, Porter, 2003).

The interaction of regions within the national economy leads to the increase of their functioning results in comparison with those possible at independent development, i.e. to the appearance of the interaction effect.

In our opinion, it is necessary to use generalizing indicators of regional facility development effectiveness for a comprehensive analysis of the interaction effect at the regional level, (Nekrasov, 1974; Bandman et al, 1984; Granberg, 2006).

A principled methodical approach to the solution of this problem was developed by the authors.

The statement of the problem is the following one: i t is required to find the values of the variables Xpj under the conditions of the total economic effect maximization, i.e. the difference of the resulted costs for the consumer unit of a construction from the embedded and traditional materials multiplied by implementation volumes:

$$Q = \max \sum_{p} \sum_{j} (r_{pj} - c_{pj}) x_{pj} \quad (1)$$

At that the following restrictions are taken into account:

$X_{pj} \geq 0$, (2)

$X_{pj} \leq b_{pj}$, (3)

$$\sum_{p} \sum_{j} x_{pj} k_{mj}^{h} = \Pi_{mt} \quad (4)$$

where: j - the number of industrial design type or an enlarged structural group;

p - the number of the consumer area;

C_{pj} - the resulted expenses for a consumer unit of a design;

j-th species from the distributed resource used in the p-th area;

r_{pj} - reduced costs for a consumer unit of the j-th type construction from the replaced traditional materials in the conditions of the p-th area;

b_{rj} - the ultimate need for j-type constructions (from new materials) in the p-th area, in consumer units;

Π_{mt} - the total amount of material distributed in the t-th year, in the appropriate units:

K_{mj}^{h} - the consumption of the m-th resource for a consumer unit of constructions of j_th type during the application of new types of structures (constructive solutions);

x_{pj} - the volume of constructions of the j-th type from the new materials in the consumer units used in the p-th area.

The condition (2) expresses the requirement of unidirectional nature of the problem; Condition (3) shows that the volume of implemented j-type constructions can not be higher than the maximum total demand for structures from new materials in the p-th area; The expression (4) fixes the limit of the total amount of new material application for all types of structures and all areas.

The problem formulated in the form of the relationship (1) - (4) is most rationally resolved by the method of consuming region ranking (the regions of the country), depending on the level of economic efficiency of new progressive resource application instead of traditional ones. The regional index of the comparative economic efficiency of new progressive industrial structure, material parts (Ĩpm) application is determined by the following expression:

$$\tilde{I}_{pm} = \frac{Э_{pm}}{Э_{\delta m}} \quad (5)$$

where: $Э_{pm}$ - the specific value of the annual (integral) economic effect from the application of a new m-th resource in the p-th region instead of the reference (traditional) resource;
$Э_{\delta m}$ - the specific value of the annual (integral) economic effect from the application of the new m -th resource in the basic region instead of the standard (traditional) resource.

After the determination of Ĩpm index value for all regions, they are ranked in the order, corresponding to the decreasing value of this index. When intermediate calculations are performed from the general possible volume in the year t of the new progressive resource ПМt the need for it is subtracted continuously from those regions where the application of the new resource has the greatest potential of economic efficiency.
This procedure continues until the entire possible volume of new m-th resource application in the t-th year (Пmt) is not be exhausted. The result of the calculation carried out for each region is the determination of the estimated volume of the new resource pmt application and an optimized structure of those resources is formed, the total volume of application of which in the whole country is organic during the t-th year.

The definition of the estimated need for each region in traditional resources is determined taking into account its equivalent replacement by a new resource according to the following formula:

$$P_{pkt} = \sum_{i=1}^{i=n} r_{ki} * O_{pit} - \sum_{k=1}^{k=l} K_{mk} d_{mpk} \Delta П_{pmt} \quad (6)$$

where: P_{pkt} is the estimated demand of the p-th region in the k-th traditional material resource during the t-th year;
r_{ki} - specific indicators of k-th material resource consumption in the development of objects of the i-th sector of the economy, formed during the base year in the p-th region;
O_{pit} – the planned volume of construction and installation works in the p-th region for the t-th sector of the national economy during the t-th year;
K_{mk} – substitution (elasticity) coefficient, characterizing the ratio of specific costs of the K-th traditional resource and the m-th new progressive type of resource;
D_{mpk}- the share of the volume of the m-th resource application in the p-th region, which is directed to the k-th traditional resource replacement;
$\Delta П_{pmt}$- additional (in comparison with the base year) volume of new m-th resource application in the p-th region during the t-th year.

Conclusions

Absolute results of calculations according to the optimal regional differentiation of sectoral indices of social enterprise development depend on the amount and the structure of work taken as initial data. Thus, they are the quantity that requires periodic adjustments during the development and the refinement of strategic plans. However, the relative indicators, and primarily the ratio of growth rates concerning the use of various types of material resources in different regions of the country, seem to be more stable, retaining its significance as a quantitative characteristic of the main development trends of the production structure in the region.

In this regard, it seems legitimate and expedient to develop consolidated regional medium-term programs for the strategic provision of a set of measures to improve the technical, economic and social level of production. Consolidated regional strategic target programs should be formed on the basis of territorial differentiation of sectoral targeted programs. The final indicators of the combined regional strategic target programs should characterize the total complex impact of the whole set of sectoral targeted programs on the technical and economic indicators of organization and enterprise activities of a given territory in the dynamics for the entire period of program implementation.

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