

A Model for Optimizing the Resource Efficiency of Meso-economical Production Systems

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efficiency, resource provision,
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programming

This article explores the resource efficiency of production systems at the mesoeconomic level. A model has been developed for optimizing the resource efficiency of the mesoeconomic system, which is expressed in the total profit of its enterprises. A hypothesis has been put forward that the factor of resource efficiency is the structure of resource provision of an enterprise, which is determined by the share distribution of various categories of assets in the capital structure of enterprises of the mesoeconomic system. The dependence of resource efficiency on the average shares of asset categories is proposed to be determined by means of correlation and regression analysis. The resulting regression equation is the objective function of the optimization model. The optimization model is proposed to be built in the form of a linear programming problem in which it is necessary to form a system of constraints. In turn, the system of restrictions consists from a number of functions of the dependence of the relative performance indicators of financial and economic activities on the previously considered average shares of assets. The developed algorithm was tested on the example of Nizhnekamsk petrochemical cluster project, as a result of which a model for optimizing its resource efficiency was formed.

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