

## Econometric Models for Optimal Decisions in Mining Industry\*

Marius BULEARCĂ, Cornelia NEAGU, Daniel FISTUNG and Cristian SIMA

Center for Industry and Services' Economics, Romanian Academy, Bucharest, Romania,

Correspondence should be addressed to: Marius BULEARCĂ, [marusbulearca@yahoo.com](mailto:marusbulearca@yahoo.com)

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### Abstract

This paper intends to present different models for the decision-making process in mining enterprises. In the beginning, the most significant parameters of optimization problems, along with criteria optimization models are introduced, while both quantitative and qualitative optimization criteria are identified next in the article. The paper deals then with introducing the main issues related to optimal decision models in the mining industry through linear programming and the problem of re-optimizations. The analysis continues by presenting the mathematical formulation of linear programming, giving general considerations on applicability in the mining industry, and providing an example of a linear programming problem in the mining industry. Hence, the rest of the paper is dedicated to some numerical examples, first of a model of the optimal planning of the exploitation of the panels regarding the production of copper and gold, and second, giving a numerical example of the linear programming problem in the mining industry, to demonstrate its validity in investment decision-making for mining exploitation.

**Keywords:** mining industry, model, optimal decision, linear programming, re-optimization