عنوان مقاله:

Novel Approaches for Determining Exogenous Weights in Dynamic Networks DEA

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خلاصه مقاله:

Most analysts believe that the network-based dynamic data envelopment analysis needs to define a set of endogenous/exogenous weights to evaluate the performance scores of stages and periods. Against this background, the general aim of this study is to introduce heuristic novel approaches based on fuzzy interpretive structural modeling along with the historical value of periods to obtain such weights. In this context, a closer look is taken at how to perfect the model established by Kalantary and its shortcomings. The models are initially developed here in both weighted and unweighted forms, in which a company's current performance can be influenced by its past socio-environmental performance. In the next step, heuristic methods for finding weights for stages and periods are described, and depending on the specific conditions of the models, two alternatives are proposed to combine and formulate the calculated weights. This method is then applied to data from a company, Nirou Moharekeh Industrial Group, to demonstrate the capabilities of the proposed models. The results of probing ۱۲ suppliers show the power of the developed models in the differentiation of the decision-making units since there are no two units with the same ranks. In sum, the results can provide rich information for decision-makers. However, analysts must decide which characteristics to prioritize for evaluation purposes to achieve the best results for each situation.

کلمات کلیدی:

Dynamic Network Data Envelopment analysis, Exogenous Weights, Sustainable Supply Chain