عنوان مقاله:

Ranking all units with non-radial models in DEA

محل انتشار:

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خلاصه مقاله:

Data envelopment analysis (DEA) helps the managers to separate and classify the efficient and inefficient units in a homogenous group. DEA is a set of methods inferred from mathematics and other sciences in which the branch of unit ranking can be significantly effective in improving managerial decisions. Although this branch in DEA is considered still young, it has proved its ability in solving some problems like production planning, resource allocation, inventory control, etc. The managers who care about their results quality cannot be indifferent to units ranking. In this article, to rank the units which are under-evaluated, firstly the decision-making unit (DMU) is removed from the production possibility set (PPS), and then the new PPS is produced. The unit under evaluation is inside or outside of the new PPS. Therefore, to benchmark the under-evaluation DMU to new frontiers, two models are solved. If the removed unit is outside of the new PPS, the first model is feasible, and the second model is infeasible. If the removed unit is inside or on the frontier of the new PPS, both models are feasible. The method presented in this article for ranking the under-evaluation units has these characteristics: ۱- this model can distinguish extreme and non-extreme efficient units and inefficient units. ۲- Also, the presented models for ranking DMUs can be changed into a linear model. ۳- This method shows stability in changing small or near-zero data. ۴- It does not assign a false ranking. The presented methods in this article are able to distinguish the set of extreme and non-extreme efficient and inefficient units as well as being able to overcome the common problems in ranking. In this article, suggested models are introduced in subsec۳.۱ which are able to rank all under evaluation units except non-extreme efficient units, this problem is solved in subsec۳.۲, in other words in subsec۳.۲ all DMUs are ranked

کلمات کلیدی:

DEA, Ranking, Pareto-efficient, Infeasibility, Extreme efficient, Non-extreme efficient

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