عنوان مقاله:

Production Investment Modeling with Goal-Programming and weighted TOPSIS

محل انتشار:

اولین کنفرانس بین المللی تحقیق در عملیات ایران (سال: 1386)

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خلاصه مقاله:

This paper describes a mathematical model for production investment problem as a MADM model and reformulates in goal programming and solves by weighted TOPSIS algorithm. In multi attribute decision making in investment problems, there is often a complex and non-liner model because of various financial ratios that prevents to have a real and trustful solution. We consider a real production problem about covering the nominal production capacity in long term periods. In this case some parameters like material, manpower and demand values are considered. We attempt to select the best alternatives of production planning with attention to investment attributes like net present value (NPV) and productivity index (PI). This problem is about covering the nominal production capacity during a 4 years time horizon. DM decided to select the best alternative of production planning with attention to investment attributes like NPV and PI. We have an initial set of alternatives that make by a set of parameters percent of nominal production shown by ( ) while is percent of annual theoretical production capacity that should be cover in -th year. In this case, on last year of time horizon, the nominal (theoretical) production must be covering completely, i.e. . Also, we apply some constraints include material, manpower and demand as material constraint directly applied on model while violation of other constraints (demand and manpower) appear as penalties on objective functions. To construct mathematical model for described problem a set of parameters and decision variables are introduced. We attempted to model this real MADM problem in production investment with use Goal programming and solving it by LINGO to obtain this fact that sometimes finding the ideal solution may be impossible because of complexity and multi-conflict-attribute structure of model and also often there isn't enough sensitivity in GP result as a MODM methods when DM changes the importance of attributes. Therefore we would to use MADM Methods such as TOPSIS to finding better solution among alternatives that DM recognized them because of their priorities and ranking them. We show that this idea can be have much advantage such as flexibility in alternatives ranking and selection and considering DM importance about attributes and choose each alternatives in different situations, however we saw that GP result is often a high quality solution but it is not always the best. But one point that we don't precede it is how DM can generate the set of best or feasible alternatives to consider them in MADM matrix. Ge ...

کلمات کلیدی:

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