

A Hybrid MCDM Model Combining DRSA with the DEMATEL Technique for Inducing National Competitiveness

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Abstract

Faced with increasing worldwide challenges, national leaders need to pay attention to external competition and internal sustainability. Both issues concern which criteria might have a significant influence and whether interdependence among criteria exists. When considering feedback, the issues become especially complicated and hard to determine. In this research, the rules of DRSA are transformed into characteristic ratios such that significant criteria and priorities for external competition can be found. Further, a hybrid MCDM model combining characteristic ratios and the DEMATEL technique is designed to solve the interdependence of criteria for internal sustainability. A network relationship map is then constructed, which helps in understanding the complex relationship among criteria. The results show that business criteria significantly supported external competition whereas infrastructure and government criteria prominently affected internal sustainability during 2009-2010. Finally, the hybrid method predicts competitiveness.

Keyword : DRSA (dominance-based rough set approach), DEMATEL (decision-making trial and evaluation laboratory), hybrid MCDM (multi-criteria decision making), national competitiveness