　　　　　　　　　[打印本页]　[关闭]

论文

多属性群决策中基于数据稳定性与主观偏好的综合熵权法

周荣喜,范福云,何大义,邱菀华

1. 北京化工大学
2. 中国地质大学（北京）人文经管学院
3. 北京航空航天大学

摘要：

针对熵权法下属性客观权重的分散度不高的问题, 提出了基于调节系数的改进的判断矩阵标准化处理方法. 以不同决策者对相同方案同一属性的评价值为基础, 根据数据稳定性与属性权重之间的正相关关系, 提出以属性评价值的熵作为数据稳定性的度量, 并由该熵值确定属性客观权重的方法. 同时, 依据群决策者对于属性的主观偏好值的稳定性及其平均值之间的关系给出了属性的主观权重. 最后通过算例表明了所提出方法的可行性与实效性.

关键词： 综合熵权法；数据稳定性；主观偏好；多属性群决策

Integrated entropy weight method based on data stability and subjective preference in multi-attribute group decision-making

ZHOU Rong-xi, FAN Fu-yun, HE Da-yi, QIU Wan-hua

Abstract:

To increase the dispersion of the objective weights derived from entropy weighting method, an improved approach
is presented for normalizing the decision matrix based on adjustment coefficient. The entropy of attribute evaluated values
is used as a measurement of data stability, and the objective weights of attributes are determined through their entropies
according to the positive relationship between data stability and attribute weights based on the same alternative and attribute
but different decision-makers. Subjective weights of attributes are obtained on the basis of the stability of subjective
preference values given by group decision-makers and average of them. Finally, an example is given to verify the feasibility
and rationality of the proposed method.

Keywords: integrated entropy weight method；data stability；subjective preference；multi-attribute group decision
making

扩展功能

本文信息

- Supporting info
- PDF(174KB)
- [HTML全文]
- 参考文献[PDF]
- 参考文献

服务与反馈

- 把本文推荐给朋友
- 加入我的书架
- 加入引用管理器
- 引用本文
- Email Alert
- 文章反馈
- 浏览反馈信息

本文关键词相关文章

- 综合熵权法；数据稳定性；主观偏好；多属性群决策

本文作者相关文章

- 周荣喜
- 范福云
- 何大义
- 邱菀华

PubMed

- Article by Zhou,R.X
- Article by Fan,F.Y
- Article by He,T.X
- Article by Qiu,W.H

参考文献：

[1] 陈雷,王延章.基于熵权系数与TOPSIS集成评价决策方法的研究[J]. 控制与决策, 2003,18(4):456-459.
Chen L, Wang T Z. Research on TOPSIS integrated evaluation and decision method based on entropy coefficient [J]. Control and Decision, 2003,18(4):456-459.

[2] 丁世飞,王启田,纪召军,孙克强,史忠植. 基于信息熵的PCP综合决策模型研究[J].小型微型计算机系统,2007,28(1):79-82.

Ding S F, Wang Q T, Ji Z J, Sun K Q, Shi Z Z. PCP comprehensive decision-making model based on information entropy[J]. Journal of Chinese Computer Systems,2007,28(1):79-82.

[3] Chen T Y, Li C H. Determining objective weights with intuitionistic fuzzy entropy measures: A comparative analysis[J]. Information Sciences,2010,180(21): 4207-4222.

[4] 万俊, 邢焕革, 张晓晖. 基于熵理论的多属性群决策专家权重的调整算法[J] 控制与决策, 2010, 25(6): 907-910.

Wan J, Xing H G, Zhang X H. Algorithm of adjusting weights of decision-makers in multi-attribute group decision-making based on entropy theory[J]. Control and Decision, 2010, 25(6): 907-910.

[5]周荣喜,何大义,徐建荣. 基于决策者偏好的区间型属性熵权确定方法[J]. 运筹与管理, 2010, 19(1): 60-64.

Zhou R X, He D Y, Xu J R. Method of determining entropy weights of attributes based on decsion-maker's preference in uncertain multiple attribute decision-making[J]. Operations Research and Management Science,2010,19(1):60-64.

[6] 吴坚,梁昌勇,李文年. 基于主观与客观集成的属性权重求解方法[J]. 系统工程与电子技术,2007,29(3): 383-387.

Wu J, Liang C Y, Li W N. Method to determine attribute weights based on subjective and objective integrated [J]. System Engineering and Electronics,2007,29(3): 383-387.

[7] Cook W D, Kress M. A multiple-criteria composite index model for quantitative and qualitative data [J]. European Journal of Operational Research,1994,78:367-379

[8] Ma J, Fan Z P, Huang L H. A subjective and objective integrated approach to determine attribute weights[J]. European Journal of Operational Research, 1999,112(2):397-404.

[9] Wang T C, Lee H D. Developing a fuzzy TOPSIS approach based on subjective weights and objective weights[J]. Expert Systems with Applications, 2009, 36(5):8980-8985.

[10]周荣喜,刘善存,邱菀华. 熵在决策分析中的应用综述[J]. 控制与决策, 2008,23(4):361-366.

Zhou R X，Liu S C, Qiu W H. Survey of applications of entropy in decision analysis[J]. Control and Decision, 2008,23(4):361-366.

[11] 邱菀华，管理决策熵学及其应用[M]. 北京：中国电力出版社，2011.

Qiu W H. Entropy of management decision making and its application[M].Beijing: China electric power Press, 2011.

[12]魏存平,邱菀华,杨继平.群决策问题的REM集结模型[J].系统工程理论与实践,1999,19(8):38-41.

Wei C P, Qiu W H, Yang J P. Minimum relative entropy aggregation model on group decision making[J]. Systems Engineering-theory & Practice,1999,19(8):38-41.

[13] 陈华友、刘春林. 群决策中基于不同偏好信息的相对熵集成方法[J].东南大学学报(自然科学版),2005, 35(2):311-315.

Chen H Y, Liu C L. Relative entropy aggregation method in group decision making based on different types of preference information[J]. Journal of Southeast University (Natural Science Edition), 2005,35(2):311-315.

[14]徐泽水. 不确定多属性决策方法及应用[M].北京:清华大学出版社,2004.

Xu Z S. Uncertain multiple attribute decision making: methods and applications[M]. Beijing: Tsinghua University Press,2004.

本刊中的类似文章