期望值模型

模糊期望值模型

$$\begin{cases} \max\ E[f(\mathbf{x},\boldsymbol{\xi})] \\ \text{subject to:} \\ \qquad E[g_j(\mathbf{x},\boldsymbol{\xi})] \le 0, \quad j=1,2,\cdots,p \end{cases}$$

其中 $\mathbf{x}$ 是决策向量, $\boldsymbol{\xi}$ 是模糊向量, $f(\mathbf{x},\boldsymbol{\xi})$ 是收益函数, 而 $g_j(\mathbf{x},\boldsymbol{\xi})$ 是约束函数, $j=1,2,\cdots,p$.

模糊期望值多目标规划 (EVMOP),

$$\begin{cases} \max\ [E[f_1(\mathbf{x},\boldsymbol{\xi})], E[f_2(\mathbf{x},\boldsymbol{\xi})], \cdots, E[f_m(\mathbf{x},\boldsymbol{\xi})]] \\ \text{subject to:} \\ \qquad E[g_j(\mathbf{x},\boldsymbol{\xi})] \leq 0, \quad j = 1, 2, \cdots, p \end{cases}$$

其中 $f_i(\mathbf{x},\boldsymbol{\xi})$ 是收益函数, $i = 1, 2, \cdots, m$.

模糊期望值目标规划 (EVGP),

$$\begin{cases} \min\limits_{\mathbf{x}} \sum\limits_{j=1}^{l} P_j \sum\limits_{i=1}^{m} (u_{ij} d_i^+ \vee 0 + v_{ij} d_i^- \vee 0) \\ \text{subject to:} \\ \quad E[f_i(\mathbf{x}, \boldsymbol{\xi})] - b_i = d_i^+, \quad i = 1, 2, \cdots, m \\ \quad b_i - E[f_i(\mathbf{x}, \boldsymbol{\xi})] = d_i^-, \quad i = 1, 2, \cdots, m \\ \quad E[g_j(\mathbf{x}, \boldsymbol{\xi})] \leq 0, \qquad j = 1, 2, \cdots, p \end{cases}$$