

Revenue Profit

a b c d

OT bet

* ~~0-8~~ 1 19

-2

-3 -11 4 -2

3

5 8 2 65

5

1 -9 5 -25

5

-3 7 5 16

3

5 -11 5 -22

2

-5 8 3 -43

-3

2 -16 1 25

-3

1 11 0 8

1



№23 Процентное

Метод Зейделя и Простой итерационный. (1000)

FM LOGISTIC

$$\begin{cases} 34x + 9y - 7z = -143 \\ -6x + 40y + 5z = -213 \\ -x + 6y - 37z = -145 \end{cases} \quad \begin{pmatrix} -2 \\ -6 \\ 3 \end{pmatrix}$$

$$x = 0 \cdot x - \frac{9}{34}y + \frac{7}{34}z - \frac{143}{34}$$

$$y = \frac{3}{20}x + 0 \cdot y - \frac{1}{8}z - \frac{213}{40}$$

$$z = -\frac{1}{37}x + \frac{6}{37}y + 0 \cdot z + \frac{145}{37}$$

$$B = \begin{pmatrix} 0 & -\frac{9}{34} & \frac{7}{34} \\ \frac{3}{20} & 0 & -\frac{1}{8} \\ -\frac{1}{37} & \frac{6}{37} & 0 \end{pmatrix} \quad B = \begin{pmatrix} -\frac{143}{34} \\ -\frac{213}{40} \\ \frac{145}{37} \end{pmatrix}$$

$$\|B\|_1 = \frac{16}{34}$$

$$\|B\|_2 = \frac{9}{34} + \frac{6}{37} = \frac{537}{1258} < 1 = \text{OK}$$

$$\frac{537}{1258} < \frac{16}{34} \quad \|B\|_2 = \frac{338397}{25160} \approx 13.45$$



$$X_0 = \beta = \begin{pmatrix} -\frac{143}{34} \\ -\frac{213}{40} \\ \frac{145}{37} \end{pmatrix}$$

$$X_1 = \begin{pmatrix} 0 & -\frac{9}{34} & \frac{7}{34} \\ \frac{3}{20} & 0 & -\frac{1}{8} \\ -\frac{1}{37} & \frac{6}{37} & 0 \end{pmatrix} \begin{pmatrix} -\frac{143}{34} \\ -\frac{213}{40} \\ \frac{145}{37} \end{pmatrix} + \begin{pmatrix} -\frac{143}{34} \\ -\frac{213}{40} \\ \frac{145}{37} \end{pmatrix} =$$

$$= X_1 = \begin{pmatrix} -1.98949 \\ -6.44575 \\ 3.16908 \end{pmatrix}$$

$$X_2 = (-1.8472, -6.01956, 2.92743)$$

$$X_3 = (-2.00976, -5.96801, 2.9927)$$

$$X_4 = (-2.0097, -6.00055, 3.00545)$$

$$X_5 = (-1.99873, -6.00218, 3.00018)$$

$$X_6 = (-1.99939, -5.99983, 2.99961)$$

$$X_7 = (-2.000013, -5.99986, 3.00001)$$

$$X_8 = (-2.00004, -6.00002, 3.00003)$$



$$X_9 = (-1.99999, -6.00001, 3.00000)$$

$$X_{10} = (-2.0, -6.0, 3.0)$$

$$\epsilon_{10} = 0.0047$$

Matrix zeichnen

$$X^{(n+1)} = 0 \cdot X^{(n)} - \frac{1}{37} Y^{(n)} + \frac{1}{37} Z^{(n)} + \frac{143}{37}$$

$$Y^{(n+1)} = \frac{3}{20} X^{(n+1)} + 0 \cdot Y^{(n)} - \frac{1}{8} Z^{(n)} - \frac{213}{40}$$

$$Z^{(n+1)} = -\frac{1}{37} X^{(n+1)} + \frac{6}{37} Y^{(n+1)} + 0 \cdot Z^{(n)} + \frac{145}{37}$$

$$X_0 = \beta$$

$$X_1 = (-1.98999, -6.11329, 2.98134)$$

$$X_2 = (-1.97385, -5.99375, 3.00031)$$

$$X_3 = (-2.00159, -6.00028, 3.0)$$

$$X_4 = (-1.99993, -5.99999, 3.0)$$

$$X_5 = (-2.0, -6.0, 3.0)$$



№ 23 Эрсаримов

Зеренный метод (10 ит). Спектральный метод по формуле и вектору

Матрица (6 ит) содейств. числа и вектора

$$\begin{pmatrix} -4 & -6 & -10 \\ -6 & -11 & 4 \\ -10 & 4 & -3 \end{pmatrix} = A$$

$$\vec{V}^{(n+1)} = A \vec{w}^{(n)}$$

$$p_{n+1} = (\vec{V}^{(n+1)}, \vec{w}^{(n)}) \quad p_n \rightarrow \lambda_1$$

$$w^{(n+1)} = \frac{-\vec{V}^{(n+1)}}{\sqrt{\vec{V}^{(n+1)} \cdot \vec{V}^{(n+1)}}}$$

$$w_n \rightarrow$$

$$w^{(0)} = (1/\sqrt{3}, 1/\sqrt{3}, 1/\sqrt{3})$$

$$\vec{V}^{(1)} = (-11,547, -7.50555, -5.19615)$$

$$p_1 = -14.0000...$$

$$w^{(1)} = (-0,784465, -0.509902, -0.353009)$$



$$V^{(2)} = (9.72736, 8.90368, 6.86407)$$

$$P_2 = -14.59384618839$$

$$W^{(2)} = (0.654315, 0.598909, 0.761714)$$

$$V^{(3)} = (-10.8279, -8.66703, -5.53266)$$

$$P_3 = -14.83012623801$$

$$W^{(3)} = (-0.725137, -0.580425, -0.370518)$$

$$V^{(4)} = (10.0883, 9.25342, 6.04122)$$

$$P_4 = -14.92469665256$$

$$W^{(4)} = (0.67421, 0.618414, 0.40374)$$

$$V^{(5)} = (-10.4447, -9.23285, -5.47966)$$

$$P_5 = -14.9640028153$$

$$W^{(5)} = (-0.6973, -0.616395, -0.365828)$$

$$V^{(6)} = (10.1459, 9.50083, 5.6049)$$

$$P_6 = -14.98142953505$$

$$W^{(6)} = (0.676965, 0.633924, 0.373976)$$



$$V^{(7)} = (-10.2512, -9.53905, -5.3958)$$

$$\rho^{(7)} = -14.98970691908$$

$$W^{(7)} = (-0.683769, -0.636268, -0.357244)$$

$$V^{(8)} = (10.1251, 9.67259, 5.36435)$$

$$\rho^{(8)} = -14.99397089742$$

$$W^{(8)} = (0.675227, 0.64505, 0.357244)$$

$$V^{(9)} = (-10.1486, -9.71595, -5.24629)$$

$$\rho^{(9)} = -14.9963323243$$

$$W^{(9)} = (-0.676713, -0.647864, -0.349758)$$

$$V^{(10)} = (10.0916, 9.78775, 5.22495)$$

$$\rho^{(10)} = -14.9977158389$$

$$W^{(10)} = (0.672862, 0.652603, 0.348376)$$

$$\lambda_1 = -14.99772583$$

$$W = (0.672862, 0.652603, 0.348376)$$



ЯКОБУ

a_{km} - ~~показатели~~ по магнитно ~~зонам~~
 общие и. ~~зонам~~ ~~в~~ ~~блоках~~

M_i - поворот ~~в~~ ~~блоках~~ ~~к~~ ~~м-о~~ ~~оси~~

$$A_0 = A$$

$$A_n = M_n^{-1} A M_n$$

$$M_i = \begin{pmatrix} 1 & & & \\ & 1 & & \\ & & \ddots & \\ & & & 1 \end{pmatrix}$$

$$A_n \rightarrow \begin{pmatrix} \lambda_1 & & 0 \\ & \ddots & \\ 0 & & \lambda_l \end{pmatrix}$$

$$\prod_{i=1}^n M_i = (V_1, V_2, \dots, V_l)$$

$$A = \begin{pmatrix} -4 & -6 & -10 \\ -6 & -11 & 4 \\ -10 & 4 & -3 \end{pmatrix}$$

$$a_{13} = -10$$

$$h_{kk} = \cos \varphi \quad h_{km} = \sin \varphi$$

$$h_{mk} = \sin \varphi \quad h_{mm} = \cos \varphi$$

$$\varphi = \frac{1}{2} \arctan \left(\frac{2 \cdot a_{km}}{a_{kk} - a_{mm}} \right)$$

Нормаль ~~в~~ ~~блоках~~

$$\lambda_1 = -15$$

$$V_1 = \begin{pmatrix} 0, (6) \\ 0, (6) \\ 0, (3) \end{pmatrix} = \begin{pmatrix} 1 \\ 1 \\ 1/2 \end{pmatrix}$$

$$\lambda_2 = -12$$

$$V_2 = \begin{pmatrix} -0, (3) \\ 0, (6) \\ -0, (6) \end{pmatrix} = \begin{pmatrix} 1/2 \\ 1 \\ -1 \end{pmatrix}$$

$$\lambda_3 = 9$$

$$V_3 = \begin{pmatrix} -0, (6) \\ 0, (3) \\ 0, (3) \end{pmatrix} = \begin{pmatrix} -1 \\ 1/2 \\ 1 \end{pmatrix}$$

