بحث لدراسة تأثير أستخدام البرمجة المعلمية في نموذج البرمجة الخطية (دراسة تطبيقية)

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الخلاصة

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$(-5 \leq \theta \leq 5)$

$(\theta = 5)$ $(\theta = -5)$

θ X_{34} X_{24}

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Abstract

The parametric programming considered as type of sensitivity analysis. In this research concerning to study the effect of the variations on linear programming model (objective function coefficients and right hand side) on the optimal solution. To determine the parameter (θ) value $(-5 \leq \theta \leq 5)$. Whereas the result the objective function equal zero and the decision variables are non basic when the parameter ($\theta = -5$). The objective function value increases when the parameter ($\theta = 5$) and the decision variables are basic with the except of X_{24}, X_{34}. Whenever the parameter value increase, the objective function value increase and the basic variables are unchanged.

المقدمة

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T.L Saaty & S.I) 1954   (   ) (

(λ)   (X_j)   [2](Part1 Gass

(n)   [3](Part2 T.L Saaty & S.I Gass)   1955

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[1].   1998

هدف البحث

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الجانب النظري

(θ)   (θ = 0)

(parameter)

(Optimality and Feasibility)

(0θ_1)   θ   .   (θ)

θ_1   θ   (θ=θ_1)

.(θ_2 > θ_1)   (θ=θ_2)   (θ=θ_1)   (θ=θ_2)

(θ)

.(Unbounded Solution)

-: [4]

$$\text{Min or Max} \quad Z = \sum_{j=1}^{n}(C_j + C_j\theta)x_j$$

S.to

$$\sum_{j=1}^{n}\sum_{i=1}^{m} a_{ij}\, x_j \quad n \qquad \dots 2 \ \leq=\geq\ b_i + b_i^{*}\,\theta \qquad i=1$$

$$x_j \geq m \qquad \dots 2 \ 0 \qquad j=1$$

(b_i^{*})   (c_j^{*})

(θ)

-:

1. $(\theta = 0)$ $(^0B^{-1}b_i \geq 0)$ $(Z_j – C_j \geq 0)$

        $(\text{Optimality and Feasibility})$.

2. (θ)

θ $(-\infty \leq \theta \leq \infty)$

$(\theta = 0)$ $((\theta = \theta_2 \quad \theta = \theta_1))$ $(\theta_1 \leq \theta_2)$

$(\theta = \theta_1)$ $(\theta = \theta_1)$ $(\theta = \theta_2)$

$(\theta = \theta_1)$ $(\theta \geq \theta_1)$ $(\theta = \theta_2)$ $(Z_j – C_j)$

Simplex θ

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الجانب التطبيقي

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النموذج الرياضي

$$\text{Maximiz } Z = \sum_{j=1}^{m} \sum_{i=1}^{n} C_{ij} X_{ij}$$

Subject to.

$$X_{ij} \leq B_{ij}$$

$$\sum_{j=1}^{m} \sum_{i=1}^{n} X_{ij} \leq T_j$$

$$\sum_{j=1}^{m} \sum_{i=1}^{n} X_{ij} \leq R_j$$

$$X_{ij} \geq 0 \quad (i = 1 \ 2 \ 3) \ (j = 1 \ 2 \ 3 \ 4)$$

i: .

j: (i).

X_{ij}: (i) (j)
              $(\ / \ )$.

C_{ij}: (i) (j).

B_{ij}: (i) (j).

T_j: (j).

R_j: (j)

(1)

		(/)			
17161	23835	4930	3502	6787	
11441	15890	3287	2335	4525	
10296	3178	657	466	904	
2288	14301	2658.3	2101.5	4072.5	
41186	57204	11532.3	8404.5	16288.5	

(/)   (2)

(/)	
649.9	
240	
243.2	

-:

(Objective Function) **1–**

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-:

Maximize $Z= 649.9X_{11} + 240X_{21} + 243.2X_{31} + 649.9X_{12} + 240X_{22} + 243.2X_{32} +$
$649.9X_{13} + 240X_{23} + 243.2X_{33} + 649.9X_{14} + 240X_{24} + 243.2X_{34}$

(Constraints) **2-**

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$X_{11} \leq 6787$

$X_{21} \leq 3502$

$X_{31} \leq 4930$

$X_{11}+X_{21}+X_{31} \leq 23835$

$X_{11}+X_{21}+X_{31} \leq 17161$

-

$X_{12} \leq 4525$

$X_{22} \leq 2335$

$X_{32} \leq 3287$

$X_{12}+X_{22}+X_{32} \leq 15890$

$X_{12}+X_{22}+X_{32} \leq 11441$

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$X_{13} \leq 904$

$X_{23} \leq 466$

$X_{33} \leq 657$

$X_{13}+X_{23}+X_{33} \leq 3178$

$X_{13}+X_{23}+X_{33} \leq 10296$

- _____ :-

$X_{14} \leq 4072.5$

$X_{24} \leq 2101.5$

$X_{34} \leq 2958.3$

$X_{14}+X_{24}+X_{34} \leq 14301$

$X_{14}+X_{24}+X_{34} \leq 2288$

$X_{ij} \geq 0$ (i = 1 2) (j = 1 3)   2 3   (4

(QSB)

(13088800) X_{24} X_{34} .

اسلوب البرمجة المعلمية

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. $(-5 \leq \theta \leq 5)$ θ

(   )   (   )

(   )   (   )   (%20)

(3) (4)

(3)

(/)	
129.98	
48	
48.64	

(4)

3432.2	4767	986	700.4	1357.4	
2288.2	3178	657.4	467	905	
6 635	2059.2	131.4	93.2	180.8	
457.6	2860.2	531.66	420.3	814.5	

QSB   (5)

(θ)

(θ) $(\theta = 5)$

(52355200) X_{34} X_{24} .

(5) (θ)

	0	(θ)
		-5
X_{34} X_{24}	1047399	-4
X_{34} X_{24}	4642522	-3
X_{34} X_{24}	4711968	-2
X_{34} X_{24}	8376744	-1
X_{34} X_{24}	13088800	0
X_{34} X_{24}	18847870	1
X_{34} X_{24}	25654050	2
X_{34} X_{24}	33501750	3
X_{34} X_{24}	42407940	4
X_{34} X_{24}	52355200	5

QSB

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الاستنتاجات والتوصيات

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1. .

2.

$(θ=5)$ $(θ > -5)$ $(θ =-5)$

X_{34} X_{24}.

3. ( ) ( )

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1. ( )

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2.

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المصادر

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