

**APLIKASI KALIBRASI PARAMETER b
MENGUNAKAN METODE ANALISIS REGRESI
LINIER**

BAHAN PERKULIAHAN : PERTEMUAN KE-6

Data:

Variabel X:

Matriks Biaya: satuan uang dalam ratus rupiah per pergerakan antar zona

Zona	1	2	3	O _i
1	5	10	20	500
2	25	5	40	600
3	50	35	10	500
D _d	300	700	600	1600

Variabel Y:

MAT Fully Const. GR Model		<i>Zona Tujuan</i>			
		1	2	3	<i>o_i</i>
<i>Zona Asal</i>	1	238	157	105	500
	2	52	505	43	600
	3	10	38	452	500

X = data biaya

Y = data perjalanan - harus di LN

Fungsi Hambatan Eksponensial Negatif

No.	$C_{(id)} = X_i$	$T_{(id)}$	$\log_e[T_{(id)}] = Y_i$	$X_i Y_i$	$(X_i)^2$
	[1]	[2]	[3]	[4]	[5]
			$\text{Log}_e[2]$	$[1] \cdot [3]$	$[1]^2$
1	5	238	5.472	27.362	25
2	10	157	5.057	50.567	100
3	20	105	4.653	93.059	400
4	25	52	3.951	98.785	625
5	5	505	6.224	31.119	25
6	40	43	3.770	150.804	1600
7	50	10	2.299	114.928	2500
8	35	38	3.647	127.634	1225
9	10	452	6.113	61.129	100
Total	200		41.186	755.387	6600
Rerata	22.22222		4.576		

B = -0.07416

A = 6.224095

Diperoleh Nilai :

b = 0.074156

Persamaan Umum Transformasi Fungsi Hambatan

F. Eksponensial– Negatif

$$\log_e(T_{id}) = \log_e(A_i \cdot B_d \cdot O_i \cdot D_d) - \beta C_{id}$$

F. Pangkat

$$\log_e(T_{id}) = \log_e(A_i \cdot B_d \cdot O_i \cdot D_d) - \beta \log_e C_{id}$$

F. Tanner

$$\log_e(T_{id}) = \log_e(A_i \cdot B_d \cdot O_i \cdot D_d) - \beta(\log_e C_{id} + C_{id})$$

X = data biaya - harus di LN
 Y = data perjalanan - harus di LN

Fungsi Hambatan Pangkat

No.	$C_{(id)}$	$\log_e[C_{(id)}] = X_i$	$T_{(id)}$	$\log_e[T_{(id)}] = Y_i$	$X_i Y_i$	$(X_i)^2$
	[1]	[2]	[3]	[4]	[5]	[6]
		$\text{Log}_e[1]$		$\text{Log}_e[3]$	$[2] \cdot [4]$	$[2]^2$
1	5	1.609	238	5.472	8.808	2.59
2	10	2.303	157	5.057	11.643	5.30
3	20	2.996	105	4.653	13.939	8.97
4	25	3.219	52	3.951	12.719	10.36
5	5	1.609	505	6.224	10.017	2.59
6	40	3.689	43	3.770	13.907	13.61
7	50	3.912	10	2.299	8.992	15.30
8	35	3.555	38	3.647	12.965	12.64
9	10	2.303	452	6.113	14.076	5.30
Total		25.195		41.18557427	107.0661	76.67
Rerata		2.799		4.576		

B = -1.34026

A = 8.328145

Diperoleh Nilai :

b = 1.34026

Persamaan Umum Analisis Regresi Linier

$$y = A + Bx$$

$$B = \frac{N \sum_{i=1}^N (x_i y_i) - \sum_{i=1}^N x_i \sum_{i=1}^N y_i}{N \sum_{i=1}^N (x_i^2) - \left[\sum_{i=1}^N (x_i) \right]^2} = -\beta$$

$$A = \bar{Y} - B \bar{X} = \log_e (A_i \cdot B_d \cdot O_i \cdot D_d)$$

Fungsi Hambatan Tanner

No.	$C_{(id)}$	$\log_e[C_{(id)}]+[C(id)]= X_i$	$T_{(id)}$	$\log_e[T_{(id)}]= Y_i$	$X_i Y_i$	$(X_i)^2$
	[1]	[2]	[3]	[4]	[5]	[6]
		$\text{Log}_e[1]+[1]$		$\text{Log}_e[3]$	$[2]*[4]$	$[2]^2$
1	5	6.609	238	5.472	36.170	43.68
2	10	12.303	157	5.057	62.210	151.35
3	20	22.996	105	4.653	106.998	528.80
4	25	28.219	52	3.951	111.504	796.30
5	5	6.609	505	6.224	41.136	43.68
6	40	43.689	43	3.770	164.711	1908.72
7	50	53.912	10	2.299	123.920	2906.51
8	35	38.555	38	3.647	140.599	1486.51
9	10	12.303	452	6.113	75.205	151.35
Total		225.195		41.18557427	862.453	8016.92
Rerata		25.022		4.576		

B = -0.07056

A = 6.341621

Diperoleh Nilai :

b = 0.070557