



Experiment No. 8

Calibration Of Doubly Constrained Gravity Model

October 22, 2020, 2:43 pm

Input Values :

Base Year Origin-Destination Cost Matrix		
Origin	Destination	Cost
1	1	5
1	2	15
1	3	10

Origin	Destination	Cost
2	1	15
2	2	5
2	3	7

Origin	Destination	Cost
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3	1	10
3	2	7
3	3	5

Given Base Year Trip Matrix		
Origin	Destination	No. of Trips
1	1	5
1	2	50
1	3	125

Origin	Destination	No. of Trips
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2	1	50
2	2	5
2	3	100

Origin	Destination	No. of Trips
3	1	50
3	2	95
3	3	5

Sum Totals of Origin		Sum Totals of Destination	
Origin	Totals	Destination	Totals
O1	180	D1	105
O2	155	D2	150



O3	150	D3	230
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Selected Frictional Functions : Exponential Function [$F_{ij} = e^{-BC_{ij}}$]

Solution :

Trip Matrix with respect to Optimal Beta Value (Minimum SSE)		
Origin	Destination	No. of Trips
1	1	39
1	2	55
1	3	85

Origin	Destination	No. of Trips
2	1	33
2	2	48



2	3	73
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Origin	Destination	No. of Trips
3	1	32
3	2	46
3	3	71

Minimum Residual = 12662.913585311	Optimal Beta = 0.001
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Target Oi	Modelled Oi	Target Dj	Modelled Dj
180	180	105	104.87570939516
155	155	150	149.88288540159
150	150	230	230.24140520325



Beta	Residual SSE
0.001	12662.913585311
0.002	12662.913585311
0.003	12662.913585311
0.004	12662.913585311
0.005	12662.913585311
0.006	12662.913585311
0.007	12662.913585311
0.008	12662.913585311
0.009	12662.913585311
0.01	12662.913585311
0.011	12662.913585311
0.012	12662.913585311
0.013	12662.913585311
0.014	12662.913585311



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0.015	12662.913585311
0.016	12662.913585311
0.017	12662.913585311
0.018	12662.913585311
0.019	12662.913585311
0.02	12662.913585311
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0.023	12662.913585311
0.024	12662.913585311
0.025	12662.913585311
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0.027	12662.913585311
0.028	12662.913585311
0.029	12662.913585311



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0.03	12662.913585311
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0.04	12662.913585311
0.041	12662.913585311
0.042	12662.913585311
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0.044	12662.913585311



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0.045	12662.913585311
0.046	12662.913585311
0.047	12662.913585311
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0.07	12662.913585311
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0.086	12662.913585311
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0.089	12662.913585311



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0.09	12662.913585311
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0.345	12662.913585311
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0.375	12662.913585311
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0.45	12662.913585311
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0.57	12662.913585311
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