

Report

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Experiment No. 4

Doubly Constrained Gravity Model

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Input Values :

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

Future Year Origins Total			
Zone	1	2	3
	10	15	8

Future Year Destinations Total			
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Zone	1	2	3
	7	16	10

Impedance Function used : Linear function

$$[F_{ij} = 7 + (8) C_{ij}]$$

Impedance Matrix Calculations (Fij)			
Zone	1	2	3
1	31	87	127
2	87	47	87
3	127	87	47

Selected Accuracy : Individual Cell



Entered Accuracy Level (i.e., percentage of error): 3 %

Iteration # 1

Calculations

i	j	Bj	Dj	F(Cij)	BjDjF(Cij)	SumBjDjF(Cij)	Ai
1	1	1	7	31	217	2879	0.0003
1	2	1	16	87	1392	2879	0.0003
1	3	1	10	127	1270	2879	0.0003
2	1	1	7	87	609	2231	0.0004
2	2	1	16	47	752	2231	0.0004
2	3	1	10	87	870	2231	0.0004
3	1	1	7	127	889	2751	0.0004
3	2	1	16	87	1392	2751	0.0004
3	3	1	10	47	470	2751	0.0004



i	j	A _i	O _i	F(C _{ij})	A _i O _i F(C _{ij})	SumA _i O _i F(C _{ij})	B _j
1	1	0.0003	10	31	0.1077	1.0619	0.9417
1	2	0.0003	15	87	0.5849	1.0619	1.1479
1	3	0.0003	8	127	0.3693	1.0619	0.86
2	1	0.0004	10	87	0.3022	0.8712	0.9417
2	2	0.0004	15	47	0.316	0.8712	1.1479
2	3	0.0004	8	87	0.253	0.8712	0.86
3	1	0.0004	10	127	0.4411	1.1627	0.9417
3	2	0.0004	15	87	0.5849	1.1627	1.1479
3	3	0.0004	8	47	0.1367	1.1627	0.86

Origin-Destination Matrix [T_{ij}]

Zone	1	2	3	O _i	O _i '
1	0.7098	5.5499	3.7938	10	10.0535



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2	3.8558	5.8036	5.0307	15	14.69
3	2.4345	4.6465	1.1755	8	8.2564
Dj	7	16	10		
Dj'	7	16	10		

Iteration # 1000

$[D_j][F_{ij}]$

i	j	Bj	Dj	F(Cij)	BjDjF(Cij)	SumBjDjF(Cij)	Ai
1	1	0.9415	7	31	204.3009	2894.0747	0.0003
1	2	1.1516	16	87	1603.0922	2894.0747	0.0003
1	3	0.8557	10	127	1086.6817	2894.0747	0.0003
2	1	0.9415	7	87	573.3605	2183.8185	0.0005
2	2	1.1516	16	47	866.0383	2183.8185	0.0005
2	3	0.8557	10	87	744.4197	2183.8185	0.0005
3	1	0.9415	7	127	836.9745	2842.2244	0.0004
3	2	1.1516	16	87	1603.0922	2842.2244	0.0004



3	3	0.8557	10	47	402.1578	2842.2244	0.0004
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i	j	A_i	O_i	$F(C_{ij})$	$A_i O_i F(C_{ij})$	$\sum A_i O_i F(C_{ij})$	B_j
1	1	0.0003	10	31	0.1071	1.0622	0.9415
1	2	0.0003	15	87	0.5976	1.0622	1.1516
1	3	0.0003	8	127	0.3575	1.0622	0.8557
2	1	0.0005	10	87	0.3006	0.8683	0.9415
2	2	0.0005	15	47	0.3228	0.8683	1.1516
2	3	0.0005	8	87	0.2449	0.8683	0.8557
3	1	0.0004	10	127	0.4388	1.1687	0.9415
3	2	0.0004	15	87	0.5976	1.1687	1.1516
3	3	0.0004	8	47	0.1323	1.1687	0.8557

Origin-Destination Matrix $[T_{ij}]$



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Zone	1	2	3	O _i	O _i '
1	0.7059	5.5392	3.7549	10	10
2	3.9382	5.9486	5.1132	15	15
3	2.3558	4.5122	1.132	8	8
D _j	7	16	10		
D _j '	7	16	10		

Current Iteration # 1000