



Experiment No. 3

December 30, 2020, 2:17 pm

Singly Constrained Gravity Model (Origin)

Input Values :

Base Year Origin-Destination Cost Matrix							
Zone	1	2	3	4	5	6	7
1	1	10	15	15	20	25	32
2	10	1	7	5	10	15	22
3	15	7	1	8	14	16	26
4	15	5	8	1	6	10	18
5	20	10	14	6	1	16	12
6	25	15	16	10	16	1	12
7	32	22	26	18	12	12	1

Future Year Origins Total							
Zone	1	2	3	4	5	6	7



	22000	11500	17500	14500	26500	17500	11500
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Future Year Destinations Total							
Zone	1	2	3	4	5	6	7
	6475	40900	8125	31150	10900	13150	10300

Selected Impedence Functions : Power Function [$F_{ij} = C_{ij}^B$]

B value = -2

Calculations :

Impedance Matrix Calculations (F_{ij})							
Zone	1	2	3	4	5	6	7
1	1	0.01	0.0044	0.0044	0.0025	0.0016	0.001



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2	0.01	1	0.0204	0.04	0.01	0.0044	0.0021
3	0.0044	0.0204	1	0.0156	0.0051	0.0039	0.0015
4	0.0044	0.04	0.0156	1	0.0278	0.01	0.0031
5	0.0025	0.01	0.0051	0.0278	1	0.0039	0.0069
6	0.0016	0.0044	0.0039	0.01	0.0039	1	0.0069
7	0.001	0.0021	0.0015	0.0031	0.0069	0.0069	1

Dij*Fij								
Zone	1	2	3	4	5	6	7	Sum Dij*Fij
1	6475	409	36.1111	138.4444	27.25	21.04	10.0586	7116.9041
2	64.75	40900	165.8163	1246	109	58.4444	21.281	42565.2918
3	28.7778	834.6939	8125	486.7188	55.6122	51.3672	15.2367	9597.4065
4	28.7778	1636	126.9531	31150	302.7778	131.5	31.7901	33407.7988
5	16.1875	409	41.4541	865.2778	10900	51.3672	71.5278	12354.8143



6	10.36	181.7778	31.7383	311.5	42.5781	13150	71.5278	13799.482
7	6.3232	84.5041	12.0192	96.142	75.6944	91.3194	10300	10666.0025

Interaction Probabilities (P_{ij})							
Zone	1	2	3	4	5	6	7
1	0.9098	0.0575	0.0051	0.0195	0.0038	0.003	0.0014
2	0.0015	0.9609	0.0039	0.0293	0.0026	0.0014	0.0005
3	0.003	0.087	0.8466	0.0507	0.0058	0.0054	0.0016
4	0.0009	0.049	0.0038	0.9324	0.0091	0.0039	0.001
5	0.0013	0.0331	0.0034	0.07	0.8822	0.0042	0.0058
6	0.0008	0.0132	0.0023	0.0226	0.0031	0.9529	0.0052
7	0.0006	0.0079	0.0011	0.009	0.0071	0.0086	0.9657



Final Result

Origin Destination Matrix Tij									
Zone	1	2	3	4	5	6	7	Sum Dj*Fij	Future year Origins Total
1	20015.7255	1264.3138	111.6278	427.9639	84.2361	65.0395	31.0934	22000	22000
2	17.4937	11050.0828	44.7991	336.6358	29.4489	15.7901	5.7496	11500	11500
3	52.4737	1521.9886	14815.2003	887.4875	101.4039	93.6634	27.7827	17500	17500
4	12.4904	710.0737	55.1015	13520.0467	131.4148	57.075	13.7979	14500	14500
5	34.7208	877.2694	88.9154	1855.9454	23379.5501	110.1781	153.4208	26500	26500
6	13.1382	230.524	40.2493	395.0329	53.996	16676.3507	90.7089	17500	17500
7	6.8177	91.1117	12.959	103.6595	81.6132	98.4599	11105.379	11500	11500