

Report

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Experiment No. 3

Singly Constrained Gravity Model (Origin)

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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 | | | |
|--------------------------------|--|--|--|
|--------------------------------|--|--|--|



| | | | |
|------|---|----|----|
| Zone | 1 | 2 | 3 |
| | 7 | 16 | 10 |

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

B value = -2

Calculations :

| Impedance Matrix Calculations (Fij) | | | |
|-------------------------------------|--------|------|--------|
| Zone | 1 | 2 | 3 |
| 1 | 0.1111 | 0.01 | 0.0044 |
| 2 | 0.01 | 0.04 | 0.01 |
| 3 | 0.0044 | 0.01 | 0.04 |



| Dij*Fij | | | | |
|---------|--------|------|--------|-------------|
| Zone | 1 | 2 | 3 | Sum Dij*Fij |
| 1 | 0.7778 | 0.16 | 0.0444 | 0.9822 |
| 2 | 0.07 | 0.64 | 0.1 | 0.81 |
| 3 | 0.0311 | 0.16 | 0.4 | 0.5911 |

| Interaction Probabilities (Pij) | | | |
|---------------------------------|--------|--------|--------|
| Zone | 1 | 2 | 3 |
| 1 | 0.7919 | 0.1629 | 0.0452 |
| 2 | 0.0864 | 0.7901 | 0.1235 |
| 3 | 0.0526 | 0.2707 | 0.6767 |

Final Result



| Origin Destination Matrix Tij | | | | | |
|-------------------------------|--------|---------|--------|--------------------|---------------------------|
| Zone | 1 | 2 | 3 | Sum $D_j * F_{ij}$ | Future year Origins Total |
| 1 | 7.9186 | 1.629 | 0.4525 | 10 | 10 |
| 2 | 1.2963 | 11.8519 | 1.8519 | 15 | 15 |
| 3 | 0.4211 | 2.1654 | 5.4135 | 8 | 8 |