

- In an origin/destination matrix of a city composed of 10 zones (coded from 1 to 10), you are asked to identify example cell of each of the following:
 - Trip production
 - Trip attraction
 - Intra-zonal trips
 - Inter zonal trips
- In a city, a trip generation model is calibrated in regression equations using year 2011 data as follows:

$$\text{Trip production from zone } i = 250 + 0.8 \times \text{Population of zone } i$$

$$\text{Trip Attraction to zone } j = 150 + 2.5 \times \text{Jobs offered at zone } j$$

Year 2030 population of zone A = 55×10^3 and B = 82×10^3 . The number of jobs offered in 2020 of zone A = 18×10^3 and B = 12×10^3 . You are asked to estimate the trip productions and attractions of these two zones A & B.

- Given is the current O/D matrix between 3 zones. If Cross Classification trip generation model is applied to forecast trip generation, the year 2020 trip productions for three zones A, B & C are estimated as $50, 30$ & 20×10^3 and trip attractions are $60, 35$ & 25×10^3 respectively. Zone A year 2020 population is 20×10^3 capita. Answer the following:

O/D	A	B	C
A	-	16	10
B	16	-	4
C	10	4	-
Current year O/D trips $\times 10^3$			

- Adjusted estimates of trip generation forecasts.
- Estimates of Trip Production Rate for Zone A At the Current year

- At year 2020

- A study area is composed of 14 zones. The socio economic variables of these zones (car ownership and residential density) and other necessary data for the base year are given below. You are asked to calibrate a trip production model using category analysis technique

Zone	Population $\times 10^3$	Trips $\times 10^3$	Zone	Population $\times 10^3$	Trips $\times 10^3$
1	8	15.6	8	17.5	21
2	13	18	9	13	35
3	28	32	10	19	40
4	12.5	20	11	8	10
5	19	28	12	19	31
6	14.5	23	13	28	40
7	8	13	14	13	25

Car ownership level	Zones
0	1, 2, 8, 10, 12, 13
1	4, 5, 11, 14
More than 1	3, 6, 7, 9

Residential Density Level	Zones
L	1, 3, 5
M	2, 7, 9, 11, 12, 13, 14
H	4, 6, 8, 10

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