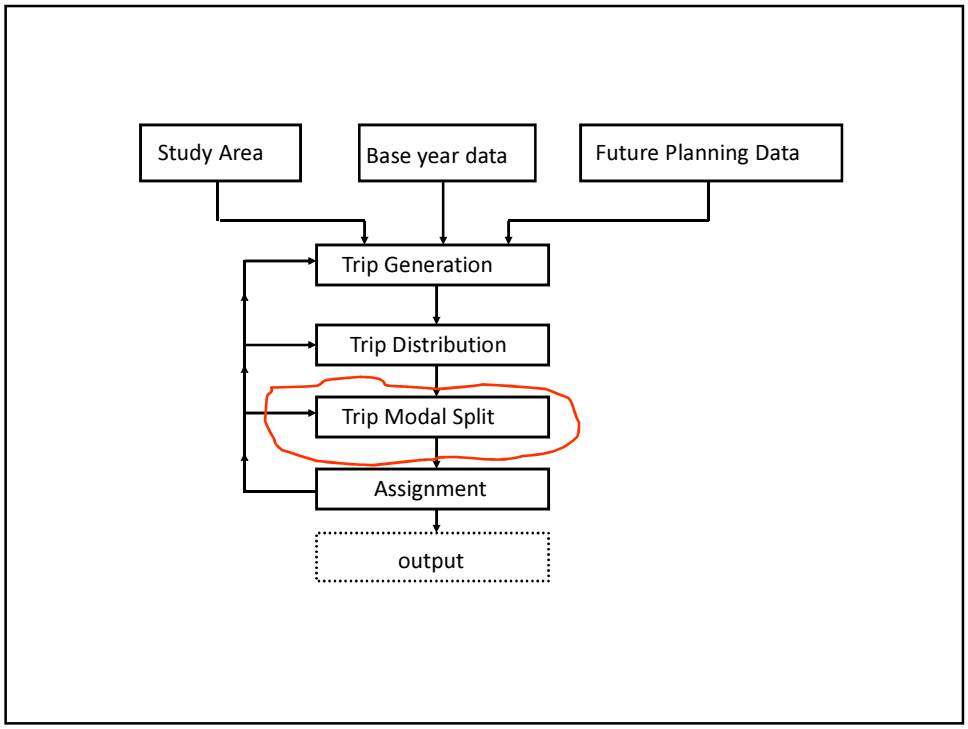
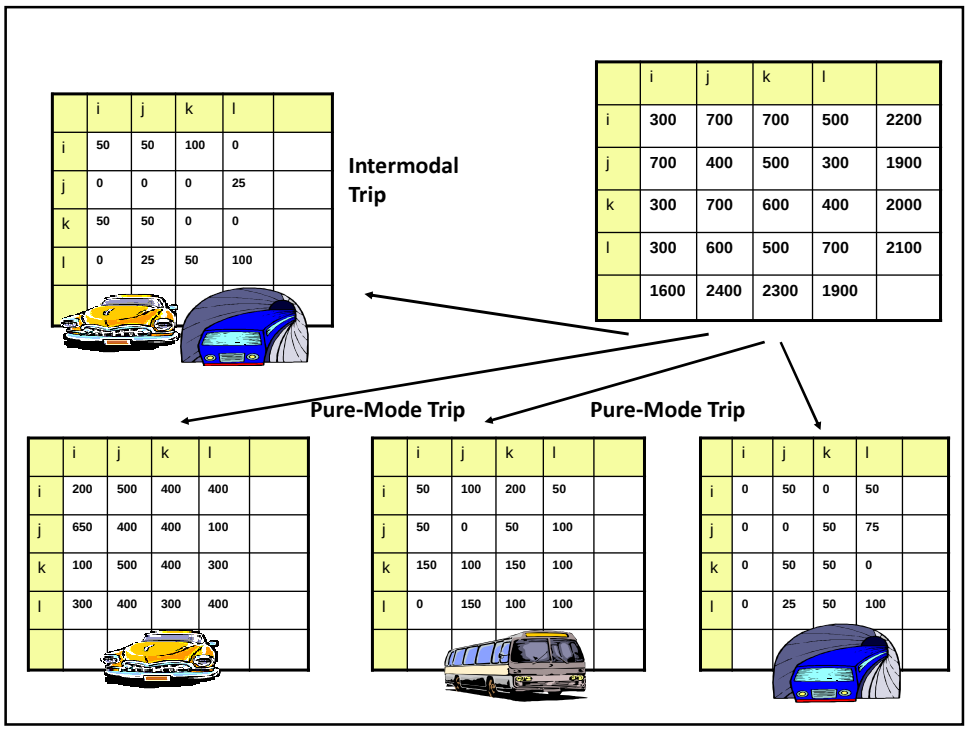




	i	j	k	l	
i	50	50	100	0	
j	0	0	0	25	
k	50	50	0	0	
l	0	25	50	100	

	i	j	k	l	
i	300	700	700	500	2200
j	700	400	500	300	1900
k	300	700	600	400	2000
l	300	600	500	700	2100
	1600	2400	2300	1900	

	i	j	k	l	
i	200	500	400	400	
j	650	400	400	100	
k	100	500	400	300	
l	300	400	300	400	

	i	j	k	l	
i	50	100	200	50	
j	50	0	50	100	
k	150	100	150	100	
l	0	150	100	100	

	i	j	k	l	
i	0	50	0	50	
j	0	0	50	75	
k	0	50	50	0	
l	0	25	50	100	

Factors influencing the choice of mode

- Characteristics of the Trip Maker

- Car availability and/or ownership
- Possession of driving license
- Household structure
- Income
- Age
- …

Factors influencing the choice of mode

- Characteristics of the journey

- Trip purpose

  In general, work trips are easier to undertake using transit.

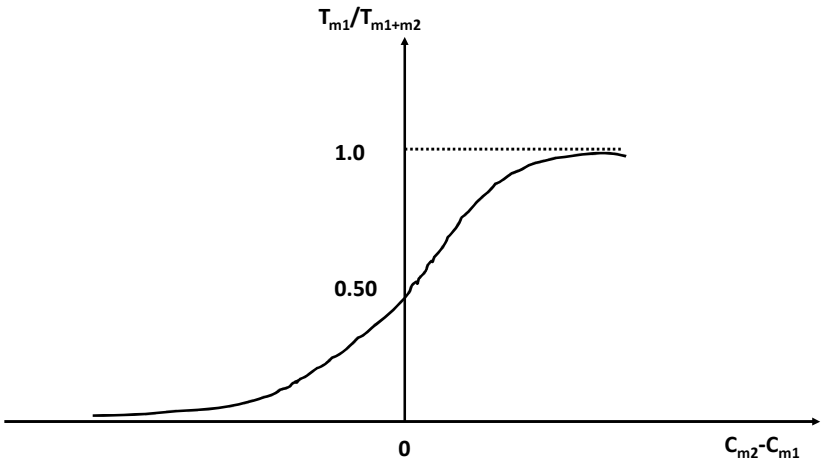
- Time of the day

  Late trips are difficult to accommodate by public transport

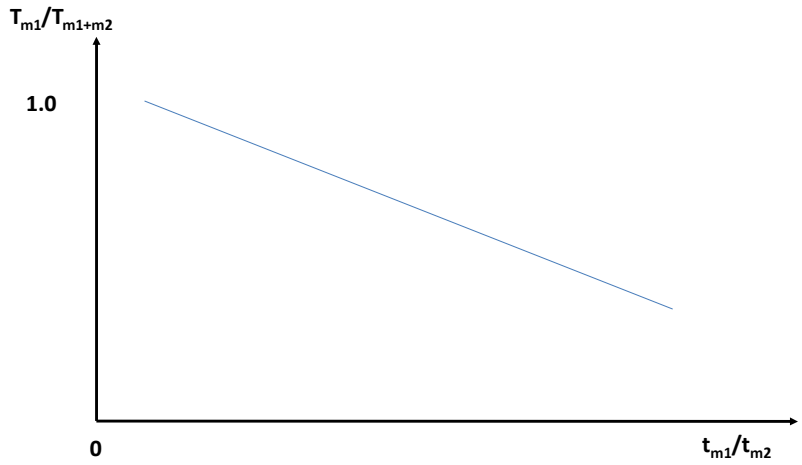
Factors influencing the choice of mode

- Characteristics of the transport facility
- Travel time
- Monetary cost
- Availability and cost of parking
- Comfort and convenience
- Reliability and regularity
- Protection and security

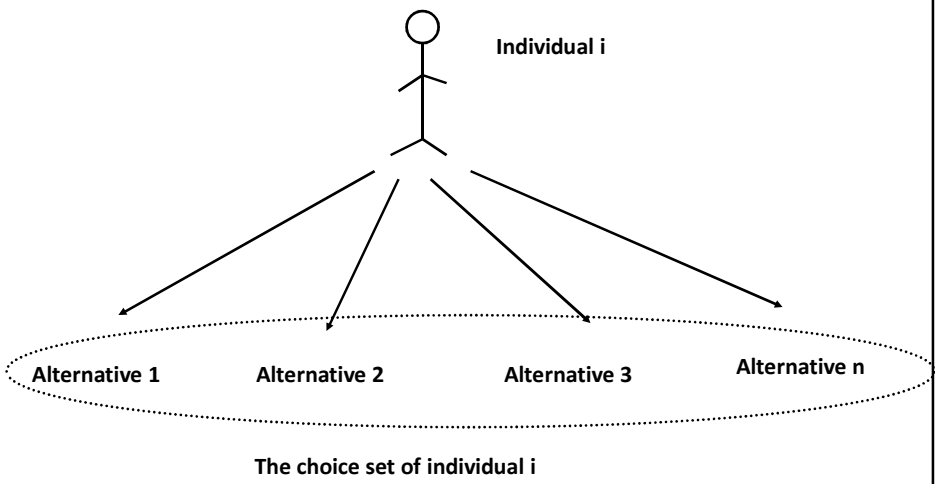
The S-shape curve



The split diversion curve

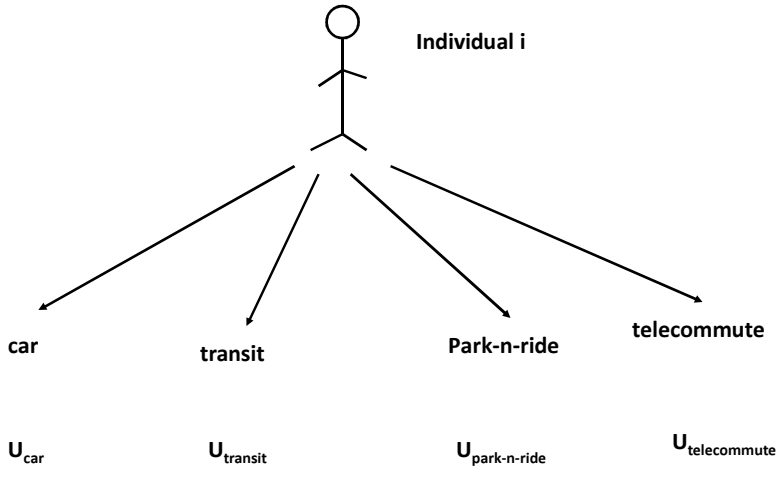


Disaggregate Choice: The Logit model



The Concept of Choice Utility

- Each individual assigns each available alternative in the choice set a “utility” measure.
- These utilities are proportional to the individual’s preferences (attractiveness) to different alternatives



As a modeler, it is always hard to observe individuals' utilities of Choice "U".

-We cut it into two parts:
Observed (systematic) part
Random part

$$U_{in} = V_{in} + \varepsilon_{in}$$

Example

$$V_{car} = 1.21 * CarOwnership - 2.11 * totalTravelTime - 1.41 * ParkingCost$$

$$V_{transit} = -1.22 - 3.24 * totalTravelTime$$

Assuming that the error part is distributed according to the Gumbell distribution (Domencich and McFadden, 1975)

$$P_{in} = \frac{e^{V_{in}}}{\sum_{n} e^{V_{in}}}$$

(1) Data Set

I	choice	individual_characteristics	trip_characteristics	mode_characteristics
1	Car	x's		
2	Car	x's		
3	Car	x's		
4	Transit	x's		
5	Car	x's		
I	transit	x's		
M	car	X's		

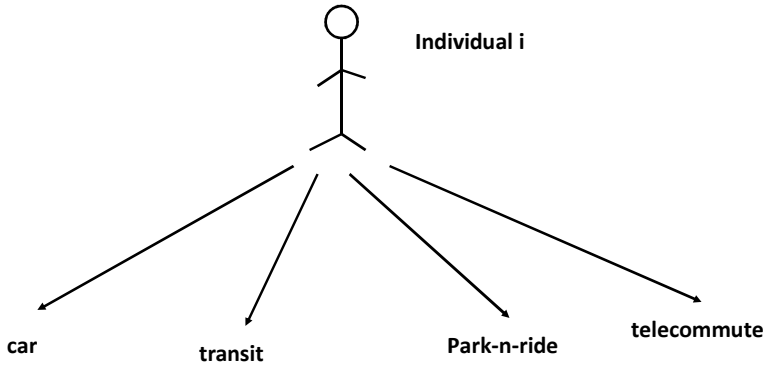
(2) Calibration of V's

(3) Estimation of mode choice

Model Structures

N-Way structure

Suitable for independent competitive alternatives



Nested structure