



Correlation Among Cluster= Mu_j
 $\text{Mu}_j = \text{Mu}_R + \exp(B \cdot x)$

$x = \text{Logarithm of distance between origin and destination}$

Root Scale= $\text{Mu}_R = \exp(B \cdot x)$

Root scale: Exponential function
 Gender: male
 Age: less than 25 years old
 Age: 25–35 years old
 Age: 35–45 years old
 Job status: full time
 Total cost/total distance
 In-vehicle travel time/total distance
 Trip origin: downtown Toronto
 Trip destination: downtown Toronto

$$Q_{\text{cluster}_j} = \exp(\text{Mu}_R \times IV_j) / (\sum_{j=1}^8 \exp(\text{Mu}_R \times IV_j) + \sum_{i=1}^9 \exp(\text{Mu}_R \times V_i))$$

$$IV_j = \ln(\exp(\text{Mu}_j + V_j) + \exp(\text{Mu}_j + V_{j+1})) / \text{Mu}_{j-1}$$

Log-sum Value:

$$\text{Ln} \left(\sum_{j=1}^8 \exp(\text{Mu}_R \times IV_j) + \sum_{i=1}^9 \exp(\text{Mu}_R \times V_i) \right)$$

- Variables used in the departure time choice utility equations:
1. Total cost
 2. In-vehicle travel time
 3. Work duration
 4. Destination of the trips: downtown Toronto
 5. Occupation category: general office
 6. Occupation category: manufacturing
 7. Occupation category: professional