Important Airport Distribution Models Formulas PDF



Formulas Examples with Units

List of 21

Important Airport Distribution Models **Formulas**

Evaluate Formula (

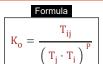
Evaluate Formula (

Evaluate Formula (

Evaluate Formula

1) Air Trip Distribution Models Formulas

1.1) Constant of Proportionality for greater Air Trip Distances Formula 🕝



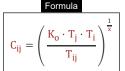
 $K_{0} = \frac{T_{ij}}{(T_{i} \cdot T_{i})^{P}} \left[1.5586 = \frac{5}{(20 \cdot 10)^{0.22}} \right]$

1.2) Constant of Proportionality given Travel by Air Passengers between Cities Formula 🕝

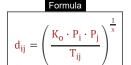


 $K_{0} = \frac{T_{ij} \cdot C_{ij}^{x}}{T_{j} \cdot T_{i}}$ $1.5016 = \frac{5 \cdot 7.75^{2}}{20 \cdot 10}$

1.3) Cost of Travel between i and j given Travel by Air Passengers between Cities Formula 🕝



1.4) Distance between i and j given Travel by Air Passengers between Cities i and j Formula 🕝 Evaluate Formula



1.5) Population of destination city given travel by air passengers between cities Formula 🕝

1.6) Population of origin city given travel by air passengers between cities Formula 🕝

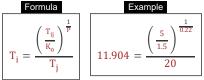
Formula Example
$$P_i = \frac{T_{ij} \cdot \left(\ d_{ij}^{\ x} \ \right)}{K_0 \cdot P_j} \qquad 60.2083 = \frac{5 \cdot \left(\ 17^{\ 2} \ \right)}{1.5 \cdot 16}$$

$$\frac{\text{Example}}{60.2083} = \frac{5 \cdot \left(17^{2}\right)}{1.5 \cdot 16}$$

Evaluate Formula (

1.7) Total Air Trips generated in City i for greater Air Trip Distances Formula 🕝





Evaluate Formula

1.8) Total Air Trips generated in City i given Travel by Air Passengers between Cities Formula

Formula
$$T_{i} = \frac{T_{ij} \cdot C_{ij}^{x}}{K \cdot T}$$

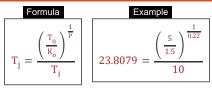
Formula Example
$$T_i = \frac{T_{ij} \cdot C_{ij}^x}{K_o \cdot T_j}$$

$$10.0104 = \frac{5 \cdot 7.75^2}{1.5 \cdot 20}$$

Evaluate Formula (

1.9) Total Air Trips generated in City j for greater Air Trip Distances Formula 🕝





Evaluate Formula [

1.10) Total Air Trips generated in City j given Travel by Air Passengers between Cities Formula

Formula
$$T_{j} = \frac{T_{ij} \cdot C_{ij}^{x}}{K_{o} \cdot T_{i}}$$

Formula Example
$$T_{j} = \frac{T_{ij} \cdot C_{ij}^{x}}{K_{0} \cdot T_{i}}$$

$$20.0208 = \frac{5 \cdot 7.75^{2}}{1.5 \cdot 10}$$

Evaluate Formula (

1.11) Travel by Air Passengers between Cities i and j Formula 🕝



Evaluate Formula 🕝

$$T_{ij} = K_0 \cdot (T_i \cdot T_j)^P$$
 4.8119 = 1.5 \cdot (10 \cdot 20)^{0.22}

1.13) Travel by Air Passengers between Cities i and i given Travel Cost Formula 🕝

Formula
$$T_{ij} = \frac{K_0 \cdot T_i \cdot T_j}{C_{ii}}$$

Formula Example
$$T_{ij} = \frac{K_o \cdot T_i \cdot T_j}{C_{ij}^x} \qquad 4.9948 = \frac{1.5 \cdot 10 \cdot 20}{7.75^2}$$

Evaluate Formula (

Evaluate Formula 🕝

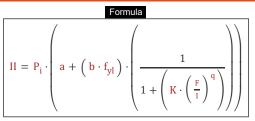
2) Generation-Distribution Models Formulas

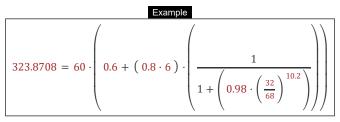
2.1) Air Trips between i and j Formula 🕝

$$\left(\left(\mathbf{Q}_{\mathsf{ij}} \right) \right)$$

Example 12105.6 =
$$(60 \cdot 16) \cdot (2 + (0.1 \cdot 5.1) + (10.1))$$

2.2) Air Trips in Year y for Stated Purpose under Leisure Category Formula 🕝







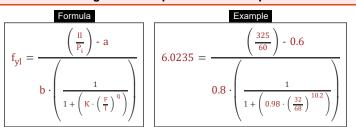
Formula $\beta = \left(\frac{P_{ij}}{a_0 \cdot (\alpha \cdot GNP)^{b_0} \cdot (\alpha \cdot GNP)^{C} \cdot \left(F_e + A + \left(\frac{B}{F - C}\right)\right)}\right)^{\frac{1}{d}}$

 $0.4879 = \left(\frac{500}{10.5 \cdot (5.5 \cdot 460)^{0.01} \cdot (5.5 \cdot 460)^{0.2} \cdot (10.15 + 0.5 + (\frac{0.3}{10.15 + 0.3}))}\right)$

2.4) Factor to adjust for Quantum Effects given Air Trips between i and j Formula 🕝

 $Q_{ij} = \left(\frac{F_{ij}}{P_i \cdot P_j}\right) - x - (\beta \cdot t)$ 9.99 = $\left(\frac{12000}{60 \cdot 16}\right) - 2 - (0.1 \cdot 5.1)$

2.5) Income for Leisure given Air Trips for Stated Purpose under Leisure Category Formula 🕝



2.6) Population at i given Air Trips between i and j Formula 🕝

$$P_{i} = \frac{F_{ij}}{\left(x + (\beta \cdot t) + (Q_{ij})\right) \cdot P_{j}} = \frac{12000}{\left(2 + (0.1 \cdot 5.1) + (10.1)\right) \cdot 16}$$

Evaluate Formula (

Evaluate Formula (

Evaluate Formula

Evaluate Formula 🕝

2.7) Population at Origin given Air Trips in Year y for Stated Purpose under Leisure Category Formula

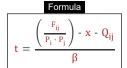
Evaluate Formula 🕝

$$\begin{aligned} P_i &= \frac{II}{a + \left(b \cdot f_{yl} \right) \cdot \left(\frac{1}{1 + \left(K \cdot \left(\frac{F}{I} \right)^q \right)} \right)} \end{aligned}$$

 $60.2092 = \frac{325}{0.6 + (0.8 \cdot 6) \cdot \left(\frac{1}{1 + \left(0.98 \cdot \left(\frac{32}{68}\right)^{10.2}\right)}\right)}$

2.8) Time in Years given Air Trips between i and j Formula 🕝

Evaluate Formula 🕝



$$4 = \frac{\left(\frac{12000}{60 \cdot 16}\right) - 2 - 10.1}{0.1}$$

Variables used in list of Airport Distribution Models Formulas above

- a Regression Contant a
- A Currency Scale Constant a
- a₀ Regression Coefficient a
- b Regression Contant b
- B Currency Scale Constant b
- b₀ Regression Coefficient b
- . C Currency Scale Constant c
- C_{ii} Cost of Travel between Cities
- d Regression Coefficient d
- d_{ii} Distance between Cities
- F Mean Total Effective Fair
- F Economy Fare
- F_{ii} Air Trips between i and j
- f_{vI} Income
- GNP Real Gross National Product
- Mean Income of Households
- II Air Trips in Year y for stated Purpose
- K Constant Reflection Surface Route Saturation
- K_o Proportionality Constant
- P Calibrated Parameter
- P_i Population of Origin City
- P_{ii} Air Passengers between Cities i and j
- P_i Population of Destination City
- · q Constant q
- Q_{ii} Factor to Adjust for Quantum Effects
- . t Number of Years
- Ti Total Air Trips generated in City i
- T_{ij} Travel by Air Passengers between Cities i and j
- T_i Total Air Trips generated in City j
- X Calibrated Constant
- α Station Share of GNP
- β Country Pair Relation Index

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