25TH ITS WORLD CONGRESS
COPENHAGEN
17 – 21 SEPTEMBER 2018
Quality of life

TRAVEL TIME RELIABILITY ON URBAN AND RURAL ROADS

M.G. Uenk-Telgen (National Datawarehouse of Traffic information)

WHAT DO YOU PREFER?

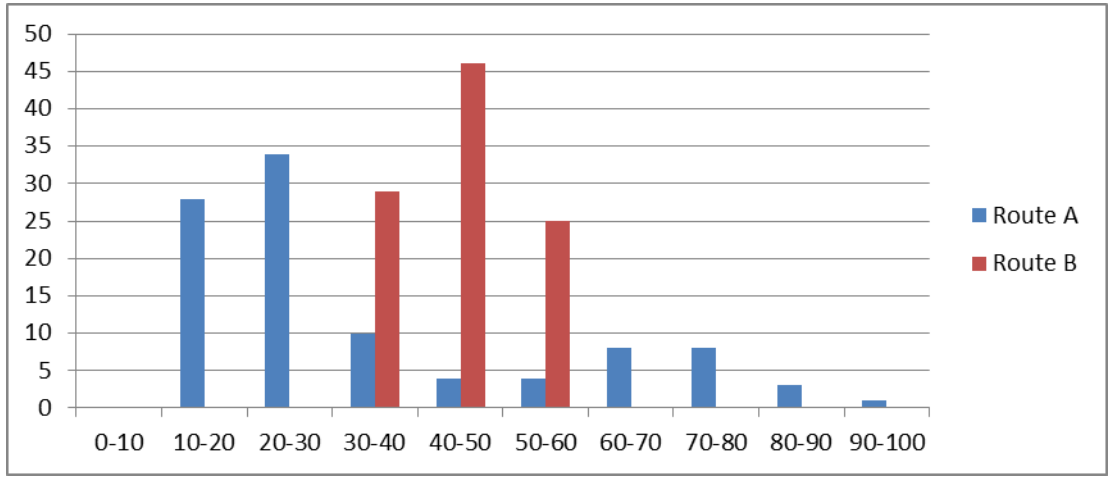
25TH ITS WORLD CONGRESS
COPENHAGEN
17 – 21 SEPTEMBER 2018
Quality of life

Route A

- Mean travel time: 35 min
- In 20% of the cases the travel time exceeds 60 minutes

Route B

- Mean travel time: 45 min
- In 100% of the cases the travel time is less than 60 minutes



TRAVEL TIME RELIABILITY

25TH ITS WORLD CONGRESS COPENHAGEN 17 – 21 SEPTEMBER 2018 Quality of life

Information on travel time reliability

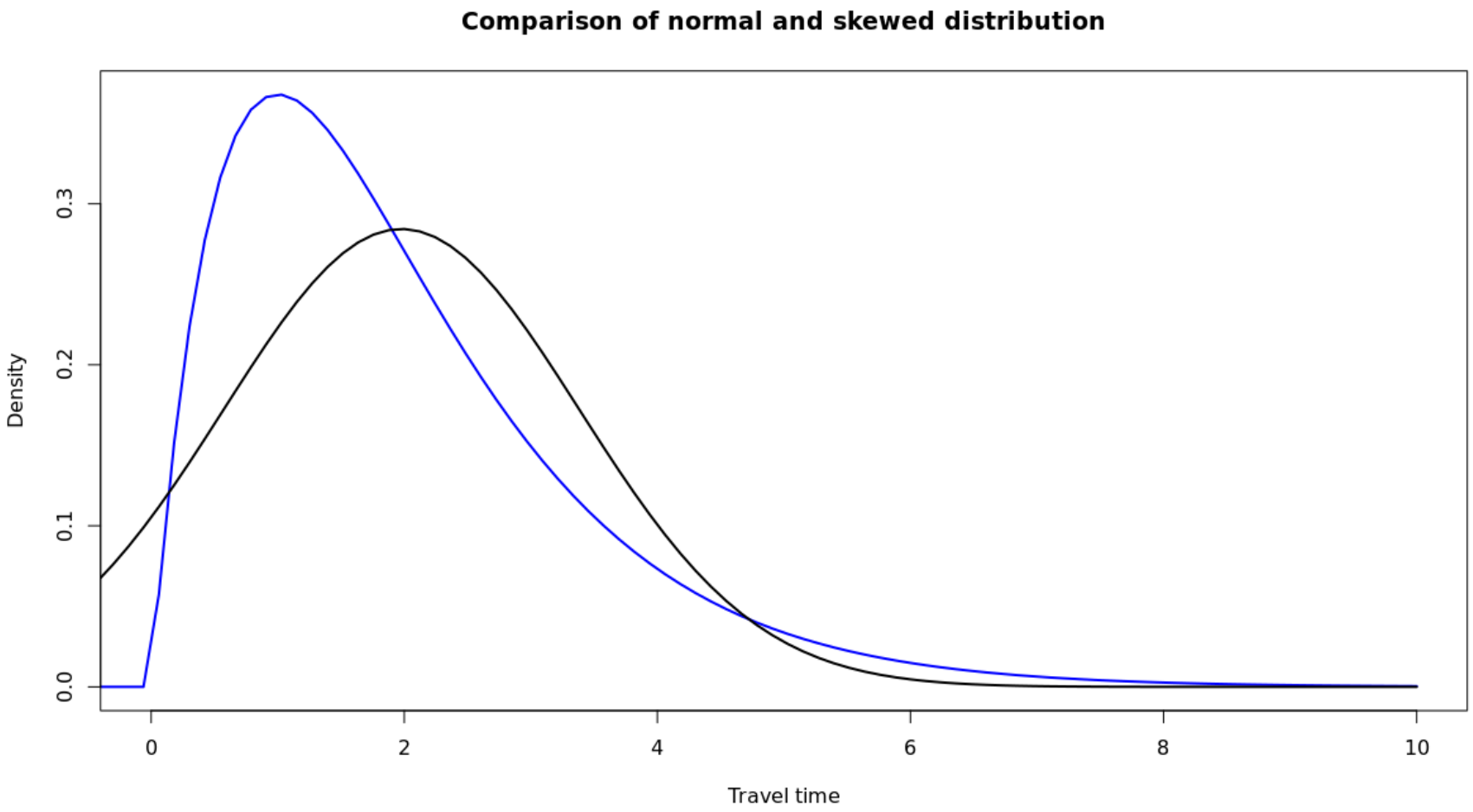
- Changes route choice behavior
- Helps understanding route choice behavior
- Helps determine weak points in our networks

Travel time reliability measure

- a measure for the travel time variability

Understanding of this variability is necessary to define a good travel time measure!

TRAVEL TIME VARIABILITY

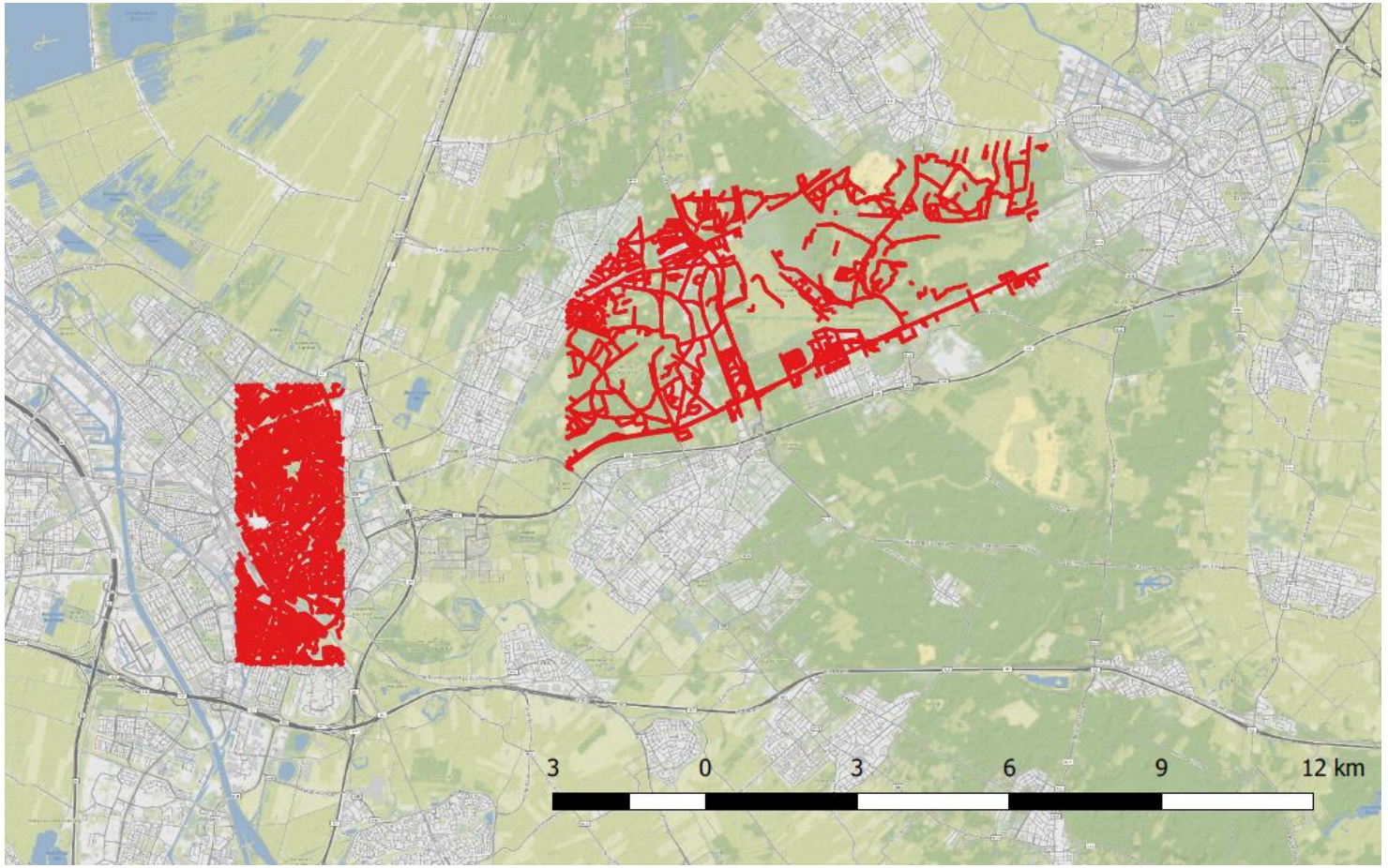


- Mean: 2
- Variance: 2
- Different distributions!!

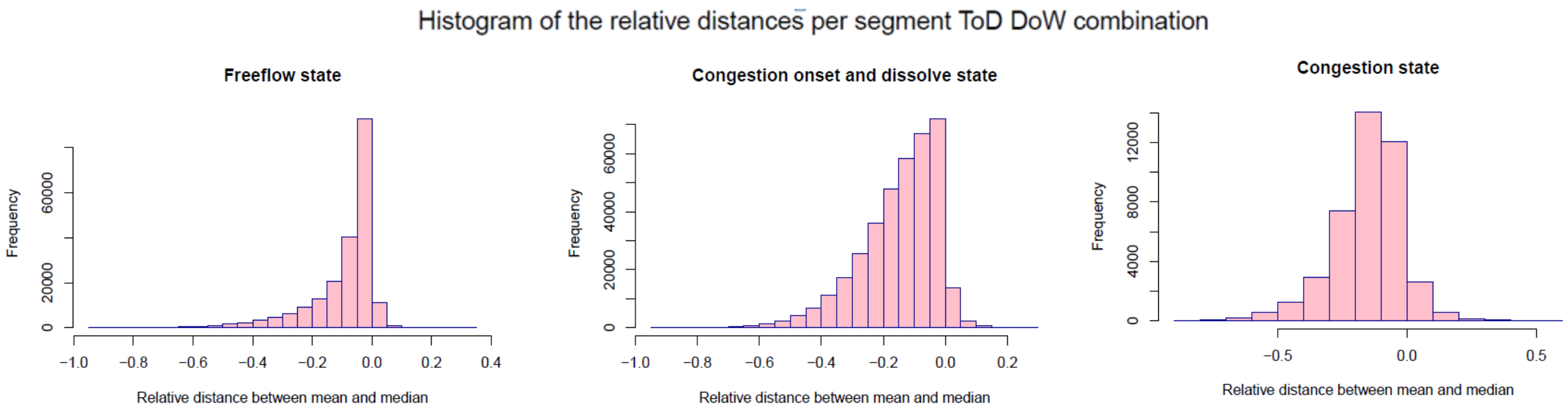
- **Understanding of distributions is necessary!**

RESEARCH AREA

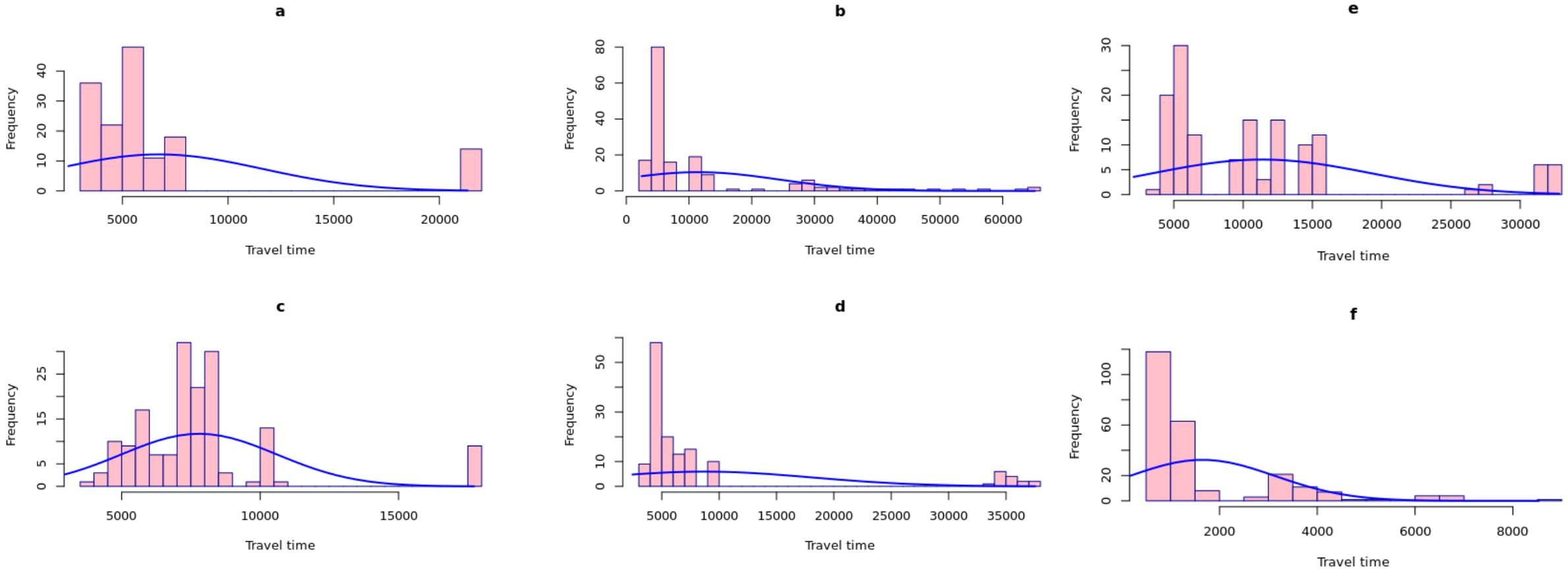
- 720 km urban and rural roads
- 4 months (Jan – May 2018)



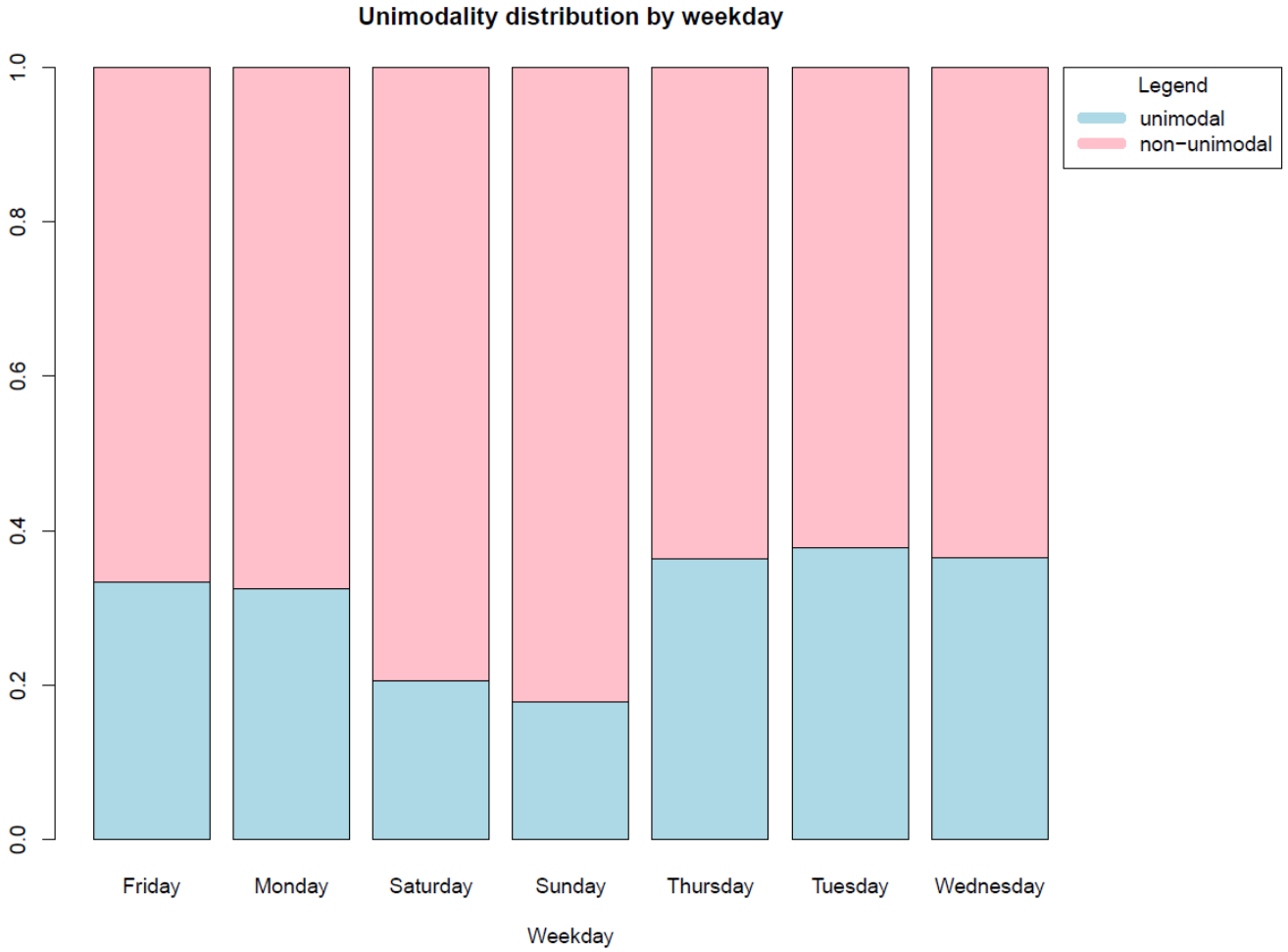
SKEWNESS

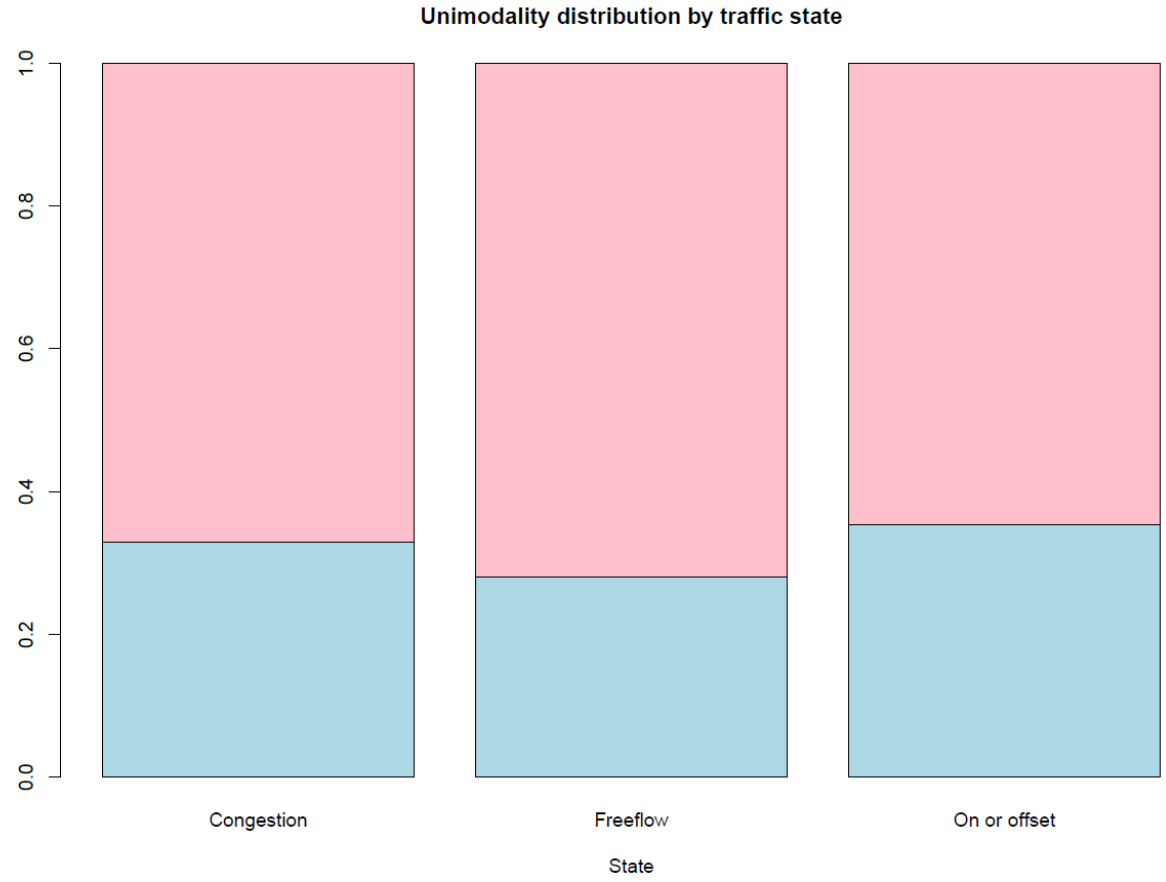

Histogram of the relative distances per segment ToD DoW combination
Freeflow state
Frequency
0
20000
60000
−1.0
−0.8
−0.6
−0.4
−0.2
0.0
0.2
0.4
Relative distance between mean and median
Congestion onset and dissolve state
Frequency
0
20000
40000
60000
−1.0
−0.8
−0.6
−0.4
−0.2
0.0
0.2
Relative distance between mean and median
Congestion state
Frequency
0
4000
8000
12000
−0.5
0.0
0.5
Relative distance between mean and median

UNIMODALITY?



RESULTS BIMODALITY





CONCLUSIONS

Travel times on urban and rural roads are complex:

- The majority of urban and rural travel time distributions are non-unimodal
- In non free-flow state the distributions are skewed
  - also in congested state!

- The most common used travel time reliability measures are therefore not appropriate for urban and rural roads