

# STA304 Group 1

# Transportation Methods of UTM Students

- ▶ Why?
- ▶ UTM is a school where most students commute
- ▶ Finding out exactly how students commute
- ▶ Has practical applications for the school and student body
- ▶ Data could be used for improving/implementing parts of the campus

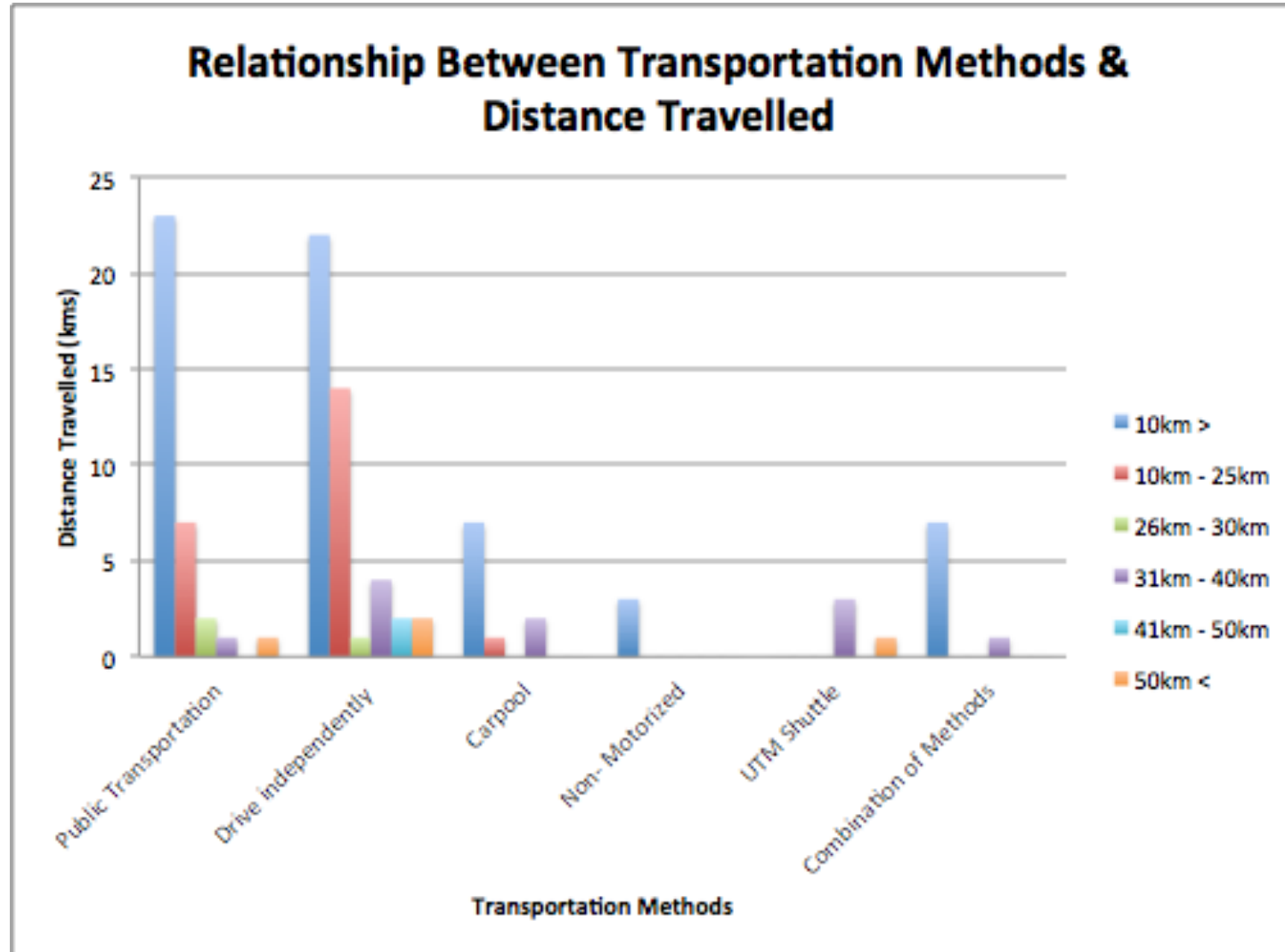
# Hypothesis

- ▶ Looking for potential relationships between distance traveled and method of transportation used
- ▶ Why?
- ▶ Can be used to gauge what methods would be better to accommodate the students

# Some Numerical Values

- ▶ 247 total responses ( $N = 247$ )
- ▶ Sampling Frame: STA304 Students in Fall Sem that signed consent form
- ▶ Conducted SRS with  $n = 106$
- ▶ Response Rate: 42.91%

# Results



# Results

Distance (in km	Public Transportation	Drive Ind.	Carpool	Non-Motorized	UTM Shuttle	Combination	Totals
10>	23	22	7	3	0	7	62
10-25	7	14	1	0	0	0	22
26-30	2	1	0	0	0	0	3
31-40	1	4	2	0	3	1	11
41-50	0	2	0	0	0	0	2
50<	1	2	0	0	1	0	4
TOTALS	34	45	10	3	4	8	104

# Results

Distance (in km	Public Transportation	Drive Ind.	Carpool	Non-Motorized	UTM Shuttle	Combination	Totals
10>	37%	35%	11%	5%	0%	11%	100%
10-25	32%	64%	5%	0%	0%	0%	100%
26-30	67%	33%	0%	0%	0%	0%	100%
31-40	9%	36%	18%	0%	27%	9%	100%
41-50	0%	100%	0%	0%	0%	0%	100%
50<	25%	50%	0%	0%	25%	0%	100%
TOTALS	33%	43%	10%	3%	4%	8%	100%

# Conclusion

- ▶ Bayes Thm allowed us to determine probabilities involving distance and their transportation methods as distance increases
- ▶ With this we can see how the farther a student is, the more likely they are to commute by driving independently



# Extensions to Work

- ▶ Expanding to cover more if not all of the student population (~15,000)
- ▶ This would reduce bias and yield a more accurate survey
- ▶ Using Confidence intervals and p-values
- ▶ Using the contingency table in a chi-squared test
- ▶ This would help derive p-values and confidence intervals
- ▶ Linear regression models to look at relationships