WILLINGNESS TO CONVERT TO THE BICYCLE FOR INTRA CITY TRANSPORTATION IN CALABAR: REVISITING THE OLD WAY.

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Background

- Calabar city hold enormous potential for cycling
- This is as this mode of transport is not entirely new to residents of this city:
  - first as colonal port city;
  - first capital of Nigeria; and
  - now the administrative headquarters of Cross River
  - prides itself as Nigeria tourist destination
- The aim of this paper is to develop a methodology for predicting the willings of residents to cycle and thus set the stage for effective bicycle transportation in the city.

Methodology

- Multistage cluster sampling was used to sample respondents from all 22 political wards
- Subsequent 440 instruments were administrated to residents from all wards using random sampling technique
- Instrument included question on whether respondents were willing to ride in the city or not
- A total of 12 bicycle infrastructure and traffic characteristics were asked in a 6-point likert scale with options ranging from highly satisfied (1) to highly dissatisfied (6)

- Variables were coded and analysed in SPSS environment using simple precentages, cross tabulation and logistic regression statistics.
- Our regression model predicted the logit, that is, the natural log of the odds of any of the decision. That is,

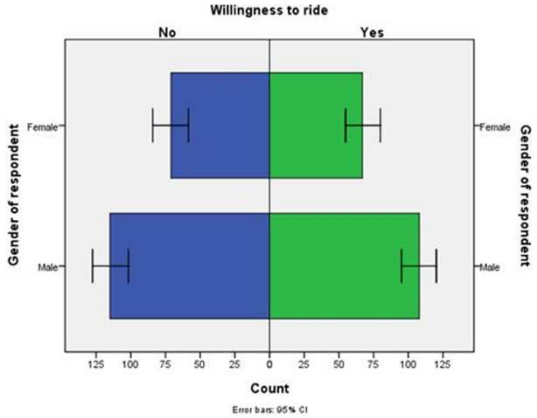
$$LN(ODDS) = \ln\left(\frac{\hat{Y}}{1-\hat{Y}}\right) = a + bX,$$

where $\hat{Y}$ the predicted probability of willingness to ride coded with1 rather than 0, unwillingness to ride. $1-\hat{Y}$ is the predicted probability of the other decision and X is our predictor variable.

Socioeconomic variables and percentage distribution

Variable	Frequency	Percentage
Gender		
Male	223	61.8
Female	138	38.2
Age		
13-17	72	19.9
18-35	206	57.1
36-50	65	18.0
51-65	12	3.3
>65	6	1.7
Education		
Post graduate	12	3.3
Bachelor	98	27.1
OND/NCE	82	22.7
SSCE/WAEC	132	36.6
No formal education	37	10.2
Occupation		
Student	164	45.4
Civil/Public servant	119	33
Armed forces	62	17.2
Other	10	2.8
	6	1.7

Results



Grender and ridership

- Omnibus Tests of Model Coefficients gives us Chi-Square of .000 on 1 df, significant beyond .001.
- This is a test of the null hypothesis that adding the gender variable to the model has not significantly increased our ability to predict the decisions made by our respondents
- The variables in the equation output shows that the regression eqation is: In(ODDS)=-.068+.005Gender
- For our women :
  $\hat{Y}$ = ODDS/1+ODDS = -068/1+(-0.068) = 0.073.
  That is, our model predicts that 7 % of women will be willing to ride.

Willingness to ride in Calabar

- A test of the full model versus a model with intercept only was statistically significant, $\chi 2$ (24, N=315) = 50.5, p<.001 and $\chi 2$ (19,n=315)=36.5, p<.001.
- Our model was able to correctly classify 86% of those unwilling to ride and 29.1% of those unwilling to ride, for an overal success rate of 66.2%.
- A man is 0.918 times more willing to ride than a woman

Willingness contd.

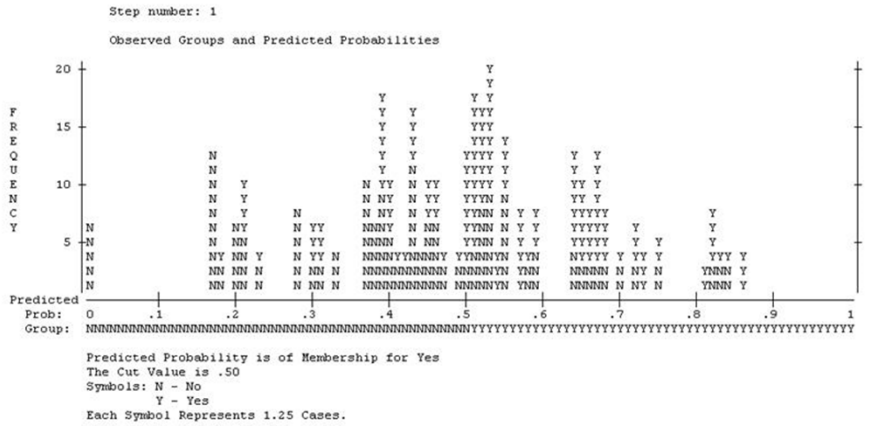
- Respondents from 50 – 65yeas are 7.23 times (or 23%) more willing to ride than all other age groups holding 18-35 (our reference age) constant
- Trades (occupation 1) are 1.094 times (or 0.9%) more likely to ride in the city than all other occupations holding students as our control.
- Education (3) (OND/NCE) is 1.73 times more likely to cycle in the city than all other educational groups holding SSCE/WAEC as constant

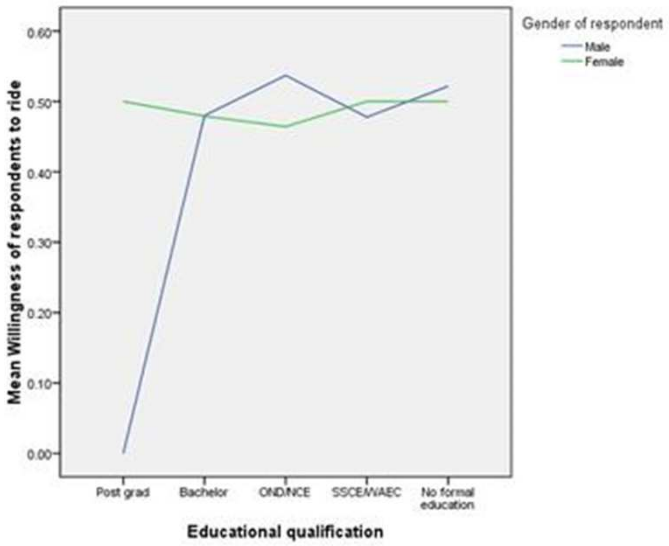
Bicycle infrastructure/trafic characteristics

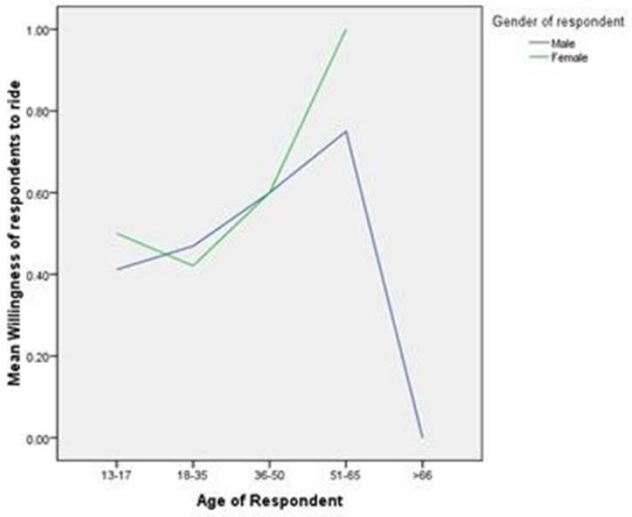
- Lanes (1.181)
- Conflicts with motorist (1.338)
- Lack of respect for cycling (1.078)
- Culture_stigma (1.046)
- Weather (1.013)
- Potholes (1.222)
- Safety issues (1.280), and
- Illumination (1.241)

- There present a more significance in predicting the probability of resident's willingness to cycle in the city

Figure 2: Observed groups and Predicted probabilities







Conclusion/Recommendation

- This study has put forward a methodology for bycicle infrastructure development in Calabar and other cities where the old culture of cycling has been lost to motorised transportation
- The willingness of urban residents to cycle has remain a highly unpredictable
- Quality of bicycle transport infrastructure and other transport characteristics are more significant variables for predicting willingness to cycle in the study area
- Deliberate attempt must therefore be made to include in urban infrastructure design design designated bicycle phats to motivate residents to ride cycle in the city

Thank you for your attention

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