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Final Exam Take Home

Released: 11/28/2020 Due: 12/06/2020

This model estimation work in Stata accounts for 25 points in your final exam. Please ensure the guidelines for submissions are followed to receive full credit. Late submissions will not be accepted.

You are given 151 observations of a travel survey collected in State College Pennsylvania. All of the households in the sample are making the morning commute to work. They are all departing from the same origin (a large residential complex in the suburbs) and going to work in the Central Business District. They have the choice of two alternate routes; 1) a two-lane rural road (speed limit = 35mph, 1 lane each direction) and 2) a limited access four-lane freeway (speed limit = 55mph, 2 lanes each direction). Please estimate at least **two** models of route choice (i.e., the likelihood of an individual traveler taking one of the two routes). Please include the coefficient estimates and odds ratios and justify the sign of your variables. The dataset includes the following variables:

Variable Name	Description
x1	Actual in-vehicle travel time in minutes
x2	Route chosen, rows: 1 - rural road, 2 - freeway
x3	Traffic flow rate at time of departure in vehicles per hour
x4	Number of traffic signals on the selected route
x5	Distance in tenths of miles along the selected route
x6	Seat belts: 1 - if wear, 0 - if not
x7	Number of passengers in car
x8	Driver age in years: 1 - 18 to 23, 2 - 24 to 29, 3 - 30 to 39, 4 - 40 to 49, 5 - 50 and above
x9	Gender: 1 - male, 0 - female
x10	Marital status: 1 - single, 0 - married
x11	Number of children
x12	Annual income: 1 - less than 20000, 2 - 20000 to 29999, 3 - 30000 to 39999, 4 - 40000 to 49999, 5 - more than 50000
x13	Model year of car (e.g. 86 = 1986)
x14	Origin of car: 1 - domestic, 0 - foreign

Please ensure your submission includes the following:

1. Summary Statistics for continuous and categorical variables
2. Your best logistic regression model output that includes both the coefficient estimates and the odds ratio
3. Interpretation of the coefficients and odds ratio
4. Stata code.
5. You do not have to turn in a formal report but at the minimum include everything in 1-4 above.