

Econ 613 Homework 3
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Exercise 1:

- 1a) Number of students: 160935; Number of schools: 898 schools; Number of programs: 32
- 1b) Number of choices: 29634
- 1c) Number of students applying to at least one senior high school in the same district as their home: 265464
- 1d) Number of students each senior high school admitted: The number of students admitted to each school are available in admittance_totals
- 1e) The cutoff of senior high schools: The cutoff for each school is available in lowest_scores
- 1f) The quality of senior high schools: The quality of each school is available in average_scores

Exercise 2:

The requested data set is available in school_level.

Exercise 3:

The requested distances are available in distances.

Exercise 4:

The recoded data set is available in school_level. The 20,000 highest score students are available in top_students.

Exercise 5:

5a) Since the test score is different for each student, I recommend using a multinomial logit model. The requested Likelihood function is called multilogit_like_fun.

5b) The estimated parameters are available in par_m. The requested marginal effects are in multilogit_margeff.

Exercise 6:

6a) Since the school quality is the same for each student, I recommend using a conditional logit model. The requested Likelihood function is called condlogit_like_fun.

6b) The estimated parameters are available in par_m2. The requested marginal effects are in condlogit_margeff.

Exercise 7:

7a) I think that the second model (the conditional logit model) is more appropriate here. This is because test scores are different for each individual, but quality is invariant to the individual. When we exclude the "Others" program choice, we are reducing choices and affecting quality. So, using the conditional logit model that can capture the effect on quality is best.

7b) The choice probabilities calculated under the conditional logit model are found in `condlogit_prob_matrix`.

7c) The choice probabilities calculated under the conditional logit model when "Others" is excluded are found in `condlogit_prob_matrix2`.