

REVIEW TOPICS FOR MID-TERM II

Our second mid-term exam is scheduled for **Monday, May 2** at the regular class time and place. The exam only covers material following the first mid-term exam. That means you are responsible for understanding Exercises 5 and later and QQs 5 and later. The keys for these exercises and quizzes are posted on the class website (except for the Key to Exercise 11). You should carefully study these exercises and quick quizzes in preparation for this second mid-term exam. In terms of the chapters in your textbook that we have covered since the last mid-term, they are

- **Chapter 5 (Multinomial Response models).** See Exercise 5 for an example of unordered multinomial modeling see Exercise 5 where we examined school choice based on aptitude scores and family characteristics. You should know the difference between the multinomial model (only case-specific explanatory variables), the conditional logit model (only choice-specific explanatory variables), and the general multinomial model which has **both** case-specific and choice-specific explanatory variables. I did not cover the additional discussion of mixed logit and nested logit models as I felt they were beyond the scope of our class. As usual, the interpretation of the coefficients in these models are important to know.
- **Chapter 6 (Ordered Multinomial models).** In Exercise 6 we studied an ordered multinomial problem in classifying banks into an ordered CRA rating where order matters. In Exercise 7 we interpreted some given output for an ordered probit problem involving the severity of automobile accidents. Again, the interpretation of the coefficients in these models are important to know.
- **Chapter 7 (Limited dependent variable models).** In Exercise 8 we studied data that is censored at zero as in the Tobit I model (the probit and regression parts have the same explanatory variables) and the Tobit II (Heckman) model (the probit and regression parts potentially have different explanatory variables but the parts are correlated with each other). In that exercise we also considered the Cragg model where it is assumed that the probit and regression parts are independent of each other although, again, the two parts may have different explanatory variables. You should know the interpretation of the coefficients in these models. For a useful decision tree, see my handout "Flow Diagram for Censored Regression Models.pdf".
- **Spatial correlation and Spatial Regression.** These topics are not covered in your textbook. For discussion the Moran's I test and Moran's Local I see the Power Point presentation, "Moran's I Discussion.ppt" that I presented in class and that I posted to you. These topics were of use in Exercise 9 where we conducted Moran's I tests on three variables in the Boston Housing data set. In Exercise 10 we moved to a spatial regression analysis of the Boston Housing data set. We examined the Spatial Error model, the Spatial Lag model and the SE/SL model and used specification tests to determine the type of model we should choose for the Boston Housing Data set.
- **Panel Data Models.** This topic is not covered by your textbook. The three major panel data models we considered were the Pooled OLS model, the Fixed Effects model, and the Random

Effects model. See the Power Point presentation that I presented in class and posted to you, "Panel Data Models.ppt", for a pretty thorough discussion of these models and specification tests (Breusch-Pagan, Hausman, Mundlak) that help us decide which of these models to use on specific data sets. I also presented and posted to you the STATA program "Class Demo of Panel Models.do" that demonstrated the various panel models and the associated diagnostic tests. Exercise 11 essentially duplicates the work done in the "Class Demo" STATA program but on a different data set having to do with wage earnings as studied in Labor economics. It is important to know that there are three classifications of panel regressor variables: (1) varying regressors, (2) time-invariant regressors, and (3) individual-invariant regressors. The coefficients for time-invariant regressors are not identified in the fixed effects model but are in the random effects model.

This test is going to be one and one-half hours long and, in composition, just like the first mid-term exam.

Remember, if your only class with me this semester is this one, your **ARC-GIS Retail Location Report** is due at the scheduled time of the final exam in this class: **5:00 pm on Saturday, May 7 in Room 113 Junkins. (If you are also taking my Eco 6380 class, the due date for your ARC-GIS report is Wednesday, May 4 at 6:30 pm in Room 303 Lee.)** I will have your graded mid-term exams ready to hand out on May 7. (I am not returning them to the class folder in our department's copy room. You have to pick them up personally from me. The key will be posted on the class website for your reference.) The graded ARC-GIS reports will probably be graded by Monday, May 9 if you want to pick them up from me sometime during the week of finals and up to the day of Baccalaureate, Friday, May 13.