

**REVIEW TOPICS
FOR MID-TERM I**

Our first mid-term exam is scheduled for **Wednesday, March 16** at the regular class time and place. We have completed four exercises and four quick quizzes so far this semester. You should carefully study them in preparation for this first mid-term exam. All of the keys and the associated programs are now posted to the class website. We also have covered Chapters 1 (Introduction), 3 (maximum likelihood estimation), 4 (probit and logit) and 8 (count and duration models) in your textbook. All of the models we have studied can be considered to be conditional probability models that extend univariate probability distributions ((Bernoulli – logit and probit), (Poisson and negative binomial – count models), and (exponential, Weibull – various survival models)). For example, see the pdf I sent you entitled “Notes on Bernoulli_Probit_Logit.pdf.”

Of course, one of the important challenges of working with extended regression-type models is the **interpretation of the coefficients**. For the logit model you have the **odds ratio** (or) presentation of the coefficients, in the count models (Poisson and negative binomial) the **irr** (incidence rate ratio) presentation of the coefficients, the **hazard ratio** (hr) coefficient presentation of the exponential, Weibull, and Gompertz duration models in the PH metric and the **time ratio** (tr) presentation of coefficients in the AFT metric for the exponential, Weibull, lognormal, loglogistic, and gamma duration models. These presentations are all demonstrated in the Exercises that you have worked on so far.

And then there is hypothesis testing of the coefficients for significance and diagnostic testing for the various models. For example, I sent you a flow diagram of how you might proceed to analyze count models. See the pdf file “Count Model Flow Chart.pdf.” Also see my discussion of count models in the pdf file “Notes on Hurdle and Inflated-Zeroes Count Models.pdf.” In this latter pdf you will see discussion of the Cameron-Trevedi test, Wooldridge test, and alpha test for equi-dispersion. Also you will find discussion of the Vuong test for excess zeroes in count models. Your textbook discusses two different approaches for modeling excess zeroes: The Hurdle model and the Inflated-Zeroes model. You should understand the basic distinctions between these two models for handling excess zeroes. For the Duration models I gave you a pdf file titled “Survival Analysis Notes_TF.pdf” that goes into the various metrics using in duration modeling: AFT and PH. You should study those notes carefully and read about the concepts in your textbook. All of these pdfs are posted on the class website.

With respect to the Exercises, you should read carefully the comments in each of the programs that I demonstrated in class and the STATA program keys that I have provided for the exercises. These notes are meant to provide you with clarifying information on STATA programming and the various approaches to modeling the types of data we have examined so far.

The test is going to be a mixture of short answer, fill-in-the-blank, and interpretation of computer output and graphs questions. So if you study the Exercise and QQ keys you should have a general feel for the type of test I will write.

Have a nice spring break and I will see you on Monday, March 14 if you have any additional questions.

TF