

TOPICS TO CONSIDER FOR FINAL EXAM

The Final Exam in this class is scheduled for Saturday, December 13, 2008 from 3:00 – 6:00 PM and is to be held in Room 303 Lee. Don't spend a whole lot of time memorizing formulas. For the exam I will make available to you the formulas on the front and back covers of your Hill, et. al. textbook. Given that we will not have access to a computer during the test you should review up on how to determine critical values for hypothesis tests directly from statistical tables like the Z, t, and F tables. You should commit to memory the ANOVA table I presented in class.

In terms of other hints I would suggest that you go over the Mid-term review document that is posted on the class website. The final exam is cumulative (approximately 60% since mid-term and 40% on the mid-term material) so that you will need to review the Mid-term exam and the previous material. Since the mid-term we have covered Exercises 6 and 7 and QQs 12 – 15 although I would certainly review **all** of the Exercises and QQs for the test.

1. Since the last mid-term we have covered Chapters 8, 9, and 12 in your Principles of Econometrics textbook.
2. In Chapter 8 on **heteroskedasticity** the method of **Weighted Least Squares** and the corresponding **Aitken's theorem** that specifies that WLS is the BLU estimator when the heteroskedasticity is of known form like the "**proportionate**" heteroskedasticity specification. Of course the definition of "weights" for the WLS procedure differ by software package, that is, SAS versus EVIEWS.
3. In detecting heteroskedasticity it is always helpful to **plot the residuals** (either in level form or squared form) against each of the explanatory variables in the regression equation. If the level plots are not "homogeneous" or if the squared plots are not "flat" then heteroskedasticity is probably present in your regression equation.
4. In terms of a test of heteroskedasticity we focused on **White's test of heteroskedasticity with and without cross product terms**. The test amounts to an overall F-test on White's heteroskedasticity test equation.
5. One **non-parametric way** of treating a regression for heteroskedasticity is to construct **White's heteroskedasticity robust standard errors** for the OLS estimates. What you give up in the nonparametric approach is the efficiency of WLS estimation but at least with the White's standard errors the corresponding robustified OLS t-ratios provide consistent inference.
6. In terms of Chapter 9 and the topic of "Dynamic Time Series Models" you should especially see the file "**Time Series Model Practice Exercise Key.pdf**" on the class website and study it very carefully. That document demonstrates very clearly how to build an autoregressive distributed lag model that is balanced and dynamically complete. Also you should carefully

read “**Time Series Regression Notes.pdf**” in the “Lecture Notes” section of the class website.

7. In Chapter 12 the authors discuss the topic of “Nonstationary Time-Series Data and Cointegration.” You can look at Lecture 24 notes to help you understand the various **Dickey-Fuller Unit Root test cases**. You should be able to conduct such unit root tests on EViews as I have demonstrated in class. Chapter 12 in your textbook has a nice section on **Random Walks** and **Spurious Regression**. You need to understand those concepts. Also you can see the SAS programs Spurious.sas, Spurious2.sas, and Spurious3.sas for demonstrations on spurious and unbalanced time series regressions.
8. You should know the definition of **Cointegration**. How do you test for cointegration between two I(1) variables using the Engle/Granger residual test? What are some examples of cointegrated time series? What does the **Granger Representation theorem** tell us? What are the **short-run dynamics** of the ECM? Which coefficients are the error correction coefficients in the ECM? What is the **disequilibrium error** in the ECM? How do you write out the equilibrium relationship implied by the cointegrating relationship? What is the nature of the **forecast profile of an ECM model**?
9. What is the nature of **Dynamic OLS**? When is it used and for what purpose? Be about to write out the Dynamic OLS form of a cointegration regression. How do you determine the **number of forward and backward lags (p)** to put in the Dynamic OLS equation before proceeding to testing? What is the **Unbiasedness of Forecasts Hypothesis** as it relates to future and spot prices in futures markets?