BOSTON COLLEGE
DEPARTMENT OF ECONOMICS

EC328   Joseph F. Quinn
Spring 1996   McGuinn 523, x4623
T Th 3:00-4:15   Office Hours: W 4-5
Fulton 117   Th 4:30-5:30

ECONOMETRICS

        This is a course in the theory and application of regression analysis. As in your statistics
course, we will concentrate on problems of estimation and hypothesis testing. Unlike your
statistics course, however, the primary focus will not be on means, variances and standard
deviations, but rather on relationships between variables (slopes of lines). We will first address
these topics with a number of simplifying assumptions, and discuss some very nice properties of
the estimators we will develop -- unbiasedness and efficiency. We will then ask what happens to
these properties when these simplifying assumptions do not hold, and whether unbiasedness and
efficiency can be revived by adjustments to the estimating technique.

        The prerequisites for the course are calculus and statistics (EC151, EC155, EC157 or the
equivalent). The text for this course is:

        Regression: A Second Course in Statistics, by Wonnacott and Wonnacott
        (John Wiley and Sons).

        We will cover most of Chapters 1 through 9 in the text. Those of you who have studied
linear algebra may also want to read Chapter 12. There will also be several fascinating articles
assigned during the semester.

        The requirements for the course (and approximate grade weights) are

                --a midterm exam (Thursday, March 14, during class) - 20%
                --a final exam (Friday, May 10, at 9 AM) - 30%
                --several problem sets - 15%, and
                --a significant research paper (details below) - 35%.

        Academic Integrity: I expect all students to do only their own work on the exams, and
to make serious individual efforts on the problems sets. We will discuss collaboration on the
problems sets in class.

        Research Paper: One very important component of this course is a significant research
paper, done in groups of 4 or 5 students. This will be a practical application of regression theory
to test some hypotheses that you find interesting. The topic is entirely up to you and can come
from economics or from any other discipline.

Timetable: Students usually find this paper to be one of the most rewarding and useful parts of the course. They also find it one of the most time consuming. Below is a timetable designed to spread this work out over the semester.

Jan. 16: Opening day

-1 week-

Jan. 23: Submit the names in your group

-1 1/2 weeks-

Feb. 1: Submit a brief description of the topic (1 page)

-2 weeks-

Feb. 15: Submit the first progress report (2-3 pages)

-4 weeks-

Mar. 14: Submit the second progress report (2-3 pages)

-5 weeks-

Apr. 18: Target due date for the paper

-1 week-

Apr. 25: Final due date for the paper (2 copies, please)

Here is a possible outline for this paper.

I. <u>Introduction</u>
   -What is the hypothesis being tested?
   -Why is it interesting?
   -What does theory predict about the relationships being studied?

II. <u>Brief Literature Review</u>
   -What other work has been done on this issue?
   -What has been found?
   -How does your paper differ from the others?

III. <u>Data</u>
   -What data would you like?
   -What data have you been able to obtain?
   -What special data problems did you encounter?

IV. <u>Empirical Work</u>
   -Regression analysis
   -Interpretation of the results

V. <u>Conclusion and Summary</u>
   -What have you learned?
   -What are the policy implications?
   -Are there suggestions for further research?

I would suggest completing Parts I-III by the beginning of March. You should have completed the data collection and entry by then, and be turning to the regression work. You should aim to have your paper done by April 18, and save that last week in case unforeseen delays arise.

Please submit two typed copies of the paper. These papers are usually 20-30 pages long.

Topic: The topic of the paper is up to you, although you should clear it with me. Pick an area in which data are readily available, and avoid topics requiring new surveys (although this has been done) or involving simultaneous equations (for example, supply and demand). Experience suggests that cross-section studies work better than time-series for this assignment. The 1990 Census volumes, for example, provide excellent cross sectional data on states and cities. There are also some excellent micro datasets available, with all sorts of data on thousands of individuals. Topics from previous years include:

- State by state variations in divorce rates
- Crime rates in U.S. cities
- The determinants of teen-age pregnancies
- State by state consumption of alcohol in the U.S.
- Salary determination in major-league baseball or basketball
- The determinants of annual strike activity in the U.S.
- State by state variations in suicide (or murder) rates
- State by state variations in fertility
- State by state variations in the number of dentists (or lawyers or doctors) per capita
- Voter turnout
- Wage, earnings or poverty differentials by state
- Baseball attendance across cities
- State by state variations in traffic fatalities