Empirical project: Testing strategic entry deterrence models
Due date: March 26, 2002. Please budget your time wisely.

I will make available a dataset consisting of monthly observations of sales and promotional data for all drugs in the cardiovascular therapeutic category, from March 1993 to February 1999.

The main goal of the project is to write a paper (between 10-20 pages) which analyzes this data and tests the strategic entry deterrence theory (specifically, the Fudenberg-Tirole "taxonomy" of entry-deterrence models). The five sections of the paper should be:

1. **Introduction**: what is your question? Review of existing literature and entry, both theoretical and empirical.

2. **Data description.** Divide up the dataset in markets according to active ingredients. Provide a table of summary statistics of the data, including: number of drugs in each market, number of generic drugs, average sales, average promotional expenditures, etc. Don't forget to deflate the monetary values by an appropriate price index.

3. **Empirical approach:**
   (a) Look for differences in promotional expenditures between markets with and without generic drugs. Which types of promotional expenditures are higher, and which are lower?
   (b) Isolate instances of *entry* of new generic drugs during the sample period. Document any noticeable change in the pricing or advertising behavior of the incumbent branded drugs in a period before or after generic entry. For some ideas, you may find Ellison and Ellison (1999) useful.
   Important note: In some markets, generic entry may be restricted if the branded version of the drug is still under patent protection. Therefore, you must try to verify that each market you classify as one "without" generics is not still covered by a patent. This is a difficult task: however, the FDA website listed above contains patent and exclusivity information on each drug.

4. **Results and interpretation**. Interpret these findings in light of the Fudenberg-Tirole "taxonomy": do your findings confirms or reject the theory, and why? Are there alternative explanations for your findings which are difficult to distinguish from the Fudenberg-Tirole explanation?

5. **Conclusions and extensions**. Summarize your main results, and briefly describe some important policy implications. Describe *two* possible extensions and, for each, state why it is not feasible given your current data, or current empirical approach.

Note: Datawork is messy (especially in IO). There will be many assumptions that you will have to make in creating your dataset. In each case, *make what you deem to be reasonable*

assumptions, and *state these assumptions explicitly* in your paper. You may also wish to present empirical results obtained under alternative sets of assumptions, in order to demonstrate the robustness (or non-robustness, as the case may be) of your findings.

References

Ellison, G., and S. Ellison (1999): "Strategic Entry Deterrence and the Behavior of Pharmaceutical Incumbents Prior to Patent Expiration," mimeo, MIT.

Medical Economics Co. (ed.) (1997): *Physicians' Desk Reference (Print ed.)*. Oradell, N.J.