Homework #1
Due 8am Friday Sept 13, 2013
Econ B2000, MA Econometrics
Kevin R Foster, CCNY
Fall 2013

For Computer Exercises, your study group should hand in a single assignment. When submitting assignments, please include your name and the assignment number as part of the filename. Please write the names of your study group members at the beginning of your homework. These assignments will be available to all members of the class.

Make sure to have read Preliminary Lectures online.

1. What are the names of the people in your study group?
2. Write a paragraph about your group’s efforts to "load the dice" to see if you can make one side more likely to come up than the others. How strong is this effect from the perfect case of a 1/6 chance of each side? Discuss and explain your procedure as well as the evidence that you’ve accumulated.
3. Is Poker gambling? In 2012 a US judge ruled that it is not, in a case where a Staten Island man was accused under federal law of holding gambling sessions. This is an interesting application of statistical reasoning: what sort of evidence would you give, for whether a game (any game) is primarily a game of skill or a game of chance? Almost every game has aspects of both. With your study group, come up with additional test(s) (not mentioned in the article!) to determine if a game such as poker depends primarily on skill or chance. (See article below.)
4. Write up the following briefing: Your company bridges the new media/old media gap by purchasing advertising space such as billboards and MTA posters (on subways and buses) to inform consumers about new smartphone apps. They want to more precisely target their advertising buys; they want to understand more about the people who commute by subway/bus/car in each of the five boroughs of NYC (Bronx, Brooklyn, Manhattan, Queens, Staten Island).

The PUMS data, collected by the US Census bureau, has useful information. The SPSS data file on Blackboard and InYourClass.com, pums_NYState.sav, has socioeconomic data on many different households including where they live (not just which borough but which neighborhood – approx. their Community District) as well as very detailed information on age, race/ethnicity, gender, education, income, rent, family structure (if married, if kids, etc).

Give a one-page briefing explaining the differences between people commuting by subway, bus, or car (so advertisers might buy billboard space or subway posters or bus signs). Marketers slice audiences into ever-narrower demographic groups, e.g. 18-29 year old Hispanic females with college education making more than median income,
etc. How do different demographic groups commute? There is also information on when they commute and how long they spend, which you might additionally look at.

Remember, I DO NOT want just the SPSS output – although you can include that as an appendix. I want a clear briefing, of the sort you might make to your boss or client, with appropriate professional-looking charts or tables.

Solution Strategies
Too many students stop stone-cold at the beginning of a problem, if they can't immediately see how to solve it. This violates one of the most basic strategies of finding a solution: Just Do It! (Yeah, it's also a slogan to sell something.)

You regularly use this solution strategy for things like electronic games. How do you learn to play them? Usually you just start doing it, figuring things out as you go along. You might not know how to score points (or even if the point of the game is scoring points); you will discover for yourself many things about the game. If you are diligent about it then after a while, you might search online for tips or even read some help files. But the main way you will learn about it is to just do it.

So, too, for stats. The only difference is that learning a game is fun work while learning stats is hard work – but that's just laziness. (With time you might learn how fun stats is!) If you haven't spent a few hours just trying it, then you haven't started anything.

And just like you chat with friends about a new game, so too work with your study group to figure out problems.

Asking questions
It is rarely helpful to go to the instructor or TA and just say "I can't do it." You have to explain what you've done so far, in detail, and where you've hit problems. Sometimes writing this out can even cause a "eureka!" moment when you see what you were missing. But it can at least help me understand what you're doing wrong.
From Dealbreaker.com
21 Aug 2012 at 2:25 PM

Poker Is Not Gambling, Jury Still Out On Investing

By Matt Levine

Because this is Dealbreaker: A Place For Finance And Sometimes Poker™, I figured some of you would be interested to know: poker is now legal!

Sort of. Basically a fellow named Lawrence Dicristina was running a poker room in Staten Island. He was arrested by the Feds and charged under the federal Illegal Gambling Business Act. He was convicted by a jury and asked a federal judge, Jack Weinstein, to throw out the jury verdict because he ran a poker room and poker isn’t gambling. Today Judge Weinstein agreed: under federal law, poker isn’t gambling. So Dicristina is free to go.

The opinion is here and it is 120 pages; the important don’t-try-this-at-home headline is that this opinion “does not undermine the holding that poker is gambling as defined by New York law” and therefore probably illegal in New York. It’s just not federally illegal, which I suspect means that Lawrence Dicristina may follow in Sergey Aleynikov’s footsteps to state court. And this is just the opinion of one judge in one district, so consult your lawyer before you restart your online poker business/Ponzi scheme/other scheme that is not technically a Ponzi scheme: the online poker crackdown is unlikely to stop just because of this.

Nonetheless it’s a nice win for the forces of poker. The decision basically turns on whether poker is mostly a game of chance (gambling, bad) or skill (not gambling, okay). For this the court looked at the testimony of two experts, defense expert Dr. Heeb, “a respected economist, statistician, and player in national poker tournaments,” who argued that skill predominates, and prosecution expert Dr. DeRosa, an econometrician who “neither has any personal experience with poker, nor has he independently analyzed the game,” and therefore felt comfortable saying that it’s mostly a game of chance, which, okay, nice intellectual honesty prosecutors.* Given that – and, the fact that, y’know, poker is a game of skill – it’s not surprising that the judge came out for the defense.

Even if you’re not one of our readers who comes here for the gambling tips, you still may enjoy this opinion just for its recapitulation in miniature of the efficient markets hypothesis. Here is the defense expert’s money chart:
That's based on the top ten and bottom ten poker players from ... umm ... some sample that Dr. Heeb found, not entirely clear, but anyway: top players made money, bottom players lost money, skill!

Here is another chart:
That’s the prosecution expert’s rebuttal: he flipped coins for 1,000 players and plotted the winnings/losings of the top and bottom 10 players. As you may have heard elsewhere, the best coin flippers outperform the worst coin flippers in much the same way that the best poker players outperform the worst.

This is not a great rebuttal: I suspect Dr. Heeb did not cherry-pick the top and bottom ten performers from a list of 1,000 players (maybe he did), and “while Dr. Heeb showed that the same poker players would consistently come out on top in the play of a new set of multiple hands of poker, this consistency could not be demonstrated in a new set of coin tossers by the same tossers.”

Nonetheless, I’m pretty sure Nassim Taleb has similar charts about the success of investment managers: no matter how skilled you (think you) are, your results will be swamped by a “spurious tail” of people who just got lucky on a lot of coin flips. And the evidence for that – that the successes and failures in the investment industry are explainable by chance rather than skill – seems a lot more robust than the prosecution’s evidence in this case.

Actually it’s a little weird that no efficient-markets experts testified here, to anchor the court’s expectations of whether skill or luck predominates elsewhere in the world. Perhaps the standard for what is and is not gambling should be, if it requires and rewards skill more than managing a mutual fund does, then it can’t be gambling. Or is that too generous?

**U.S. v. Dicristina** [EDNY]

* It’s possible that I have many biases here. STILL.

** Also other cool stuff. He got a huge PokerStars database and showed that overall-winning players won more with particular hands – say K9 offsuit – than did overall-losing players, strongly suggestive evidence that their winning was not about getting dealt better hands but about playing better with the hands they were dealt.