Does Economics make people evil?

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Girls are less cooperative than boys.

This has been demonstrated by literally over a hundred lab studies. (The first:Rapoport and Chammah [1965]. But there are hundreds more.)

The setup is a prisoner's dilemma game. For those who are unfamiliar, each player has two options, which are usually called ¡i¿cooperate¡/i¿ and *defect*. If both cooperate, both get a high payoff, but if one defects, then she gets a higher payoff but the other gets shafted. This is still true if the other player also defected: by switching to defection, her payoff rises and the other person's falls. Since defection gives a higher payoff regardless of what the opponent does, the only equilibrium in the game is for everybody to defect. Here is an example in table form; the pairs are (row's payoff, column's payoff) given the actions listed:

	C	D
C	10,10	3,12
D	12,3	5,5

To give the stats from Rapoport & Chammah, in girl-on-girl play, girls play the cooperation strategy 34% of the time; in boy-on-boy play, boys play C 59% of the time, in girl-vs-boy play, C is played about 50% of the time. A hundred studies have been run, with subjects face-to-face (which increases cooperation, by the way) or behind screens, or with male administrators or female, or with different stories attached, or with every other variation you can think of, and the result is consistent enough that we can be comfortable with the first sentence up there: girls play the cooperative strategy less than boys. The 50/50 girl-vs-boy outcome is probably due to the fact that when different types play, their cooperation rates generally meet in the middle.

Desperate to maintain gender stereotypes, some authors rewrote the results: it's not that there's a cooperate or a defect strategy—it's a choice between a risky-high-payoff strategy and a safer-low-payoff strategy, and girls tend to take the safe option. So the studies, it turns out, safely save our gender roles without any boats being rocked. Phew.

B-schoolers

A reader asked me about a study that They once did about business school students. (e.g,Frank et al. [1996]; I'm sure there are many more.) Here's the typical setup: on the first day of class, the students play a few rounds of prisoner's

dilemma games, and we measure their cooperation rate. Then they learn economics and business and stuff like that. They read Dixit & Nalebuff's Thinking Strategically. Then they play the P.D. again, and we find that the rate of playing C has fallen. We conclude that business school has made the students non-cooperative, defective, or just plain evil.

If you want to accept that business schoolers play D more often because they've become evil, then you'll have to also accept that girls play D more often because they too are evil. But clearly, both situations are much more complex.

My studyette

Here's the Beauty Contest game, cut and pasted from my game theory class's homework #1:

> Write down a number between 1 and 1000 (inclusive). We will find the average of all responses (μ), and the person who writes down two thirds of this average ($2/3 * \mu$) will receive ten bonus points on this homework. [If there are multiple winners, they will all get ten points.]

t's called a beauty contest because the original story is from Keynes, bout printing the photos of some chycks in the newspaper. People bet on ho the winner will be, so your task is not to pick the one whom you find utest, but the one you think everybody else will think is cutest. This s relevant to Macro because money is like this: you don't really care bout the value of a dollar to you, you care about what everybody else hinks a dollar is worth, and they only think a dollar is worth something ecause they think you think it's worth something.

The game here has similar properties: you have to guess what everybody else thinks the mean will be, and outdo them. If it's totally random, the mean will be 500, so you should bid 333—but everybody can think this, so you should bid two-thirds of that, which is 222—but everybody can think this, so you should bid two-thirds of 222, which is 148—but everybody can think this, so you should bid 98—but eventually, following this along, you should bid 1.

This game was the first thing I did on the first day of class. I told them only the first step, that if bids were purely random that 333 would win. I got 99 responses, which looked like this:

Three bids were the 'correct' value of 1, and you can see the others ranged pretty widely. I can only assume that those who bid over 700 just didn't understand something. The mean from the game was 259, two-thirds of which is 173. This is in line with prior beauty-contest studies. The implication is that people can do this thinking about what other people are thinking about twice: they get to 222, so if you can think three steps down you're a winner.

On homework #1, I ran the experiment again, with the text above. This is after students had all seen what a Nash equilibrium is, and that the only one in this game is one, and I even mentioned the above studies that naive humans

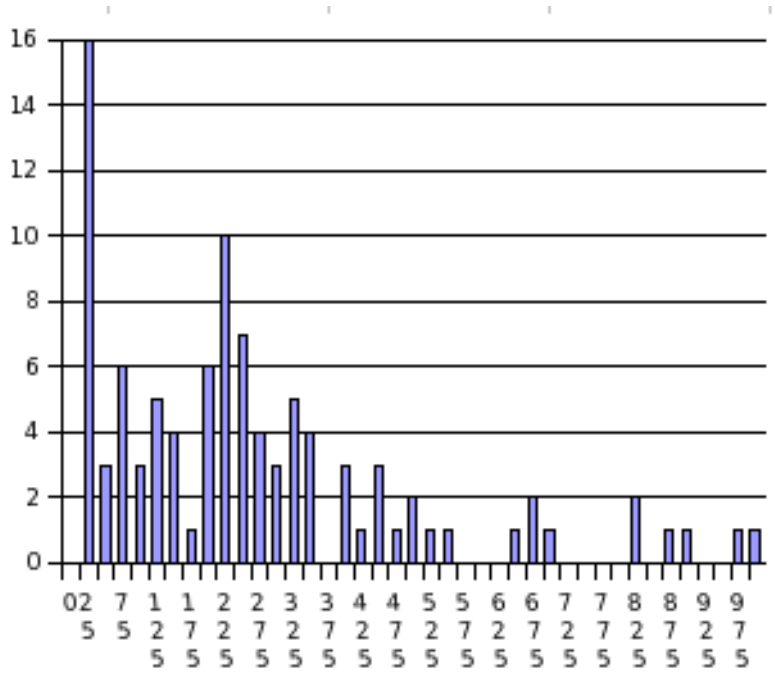

Figure 1: The before picture

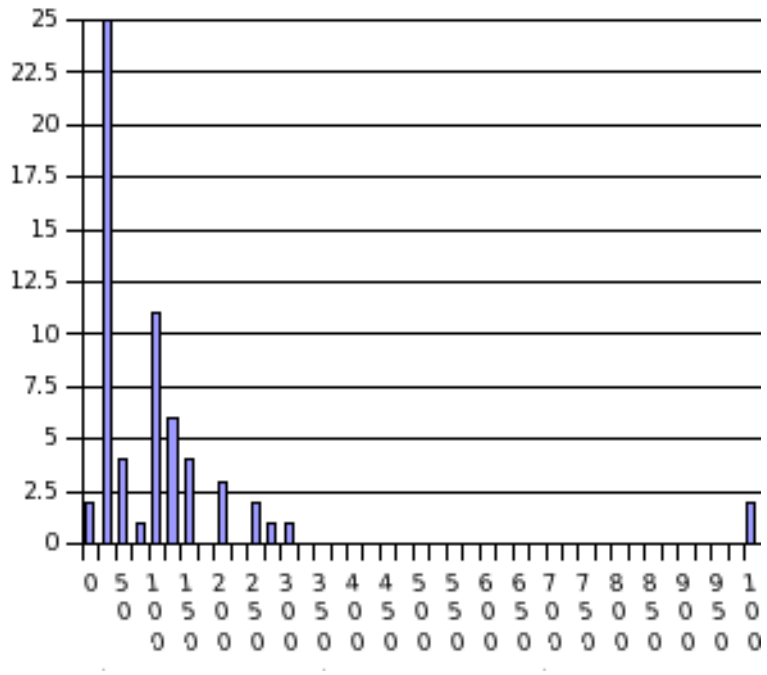

Figure 2: The after picture

generally wind up around 222. They knew the outcome of the first game, but didn't see the histogram. 63 responses were distributed as below:

There are still a couple of people at 1000, but the curve as a whole has definitely shifted downward. The mean from the game here is 100.08, two-thirds of which is 66.7. There were sixteen ones (and four bids less than one, and two around two). [Notice that the peak of the histogram is higher in the second chart; making better spreadsheet charts is not a skill I have much interest in investing in.]

There is a clear difference between the two outcomes, but what does it mean? Are people better at thinking of what other people are thinking about what they're thinking, now that they've had a game theory class? There are a whole lot of possibilities. One is that everybody saw me proclaim that one is the only equilibrium, and so they can expect that other people are much more likely to play one, because I created a common-knowledge focal point. Another is that people are just replying to the last game: just as they were able to think two steps past 500, they saw the last game was at 259 and thought two steps past that (which would be 115, which is close enough to 100 for me.) It could be that people are just more familiar with the game and less likely to screw up,

as demonstrated by the fact that only two people bid over 700 the second time. But people didn't all bid one, because everybody believed that the other people were somehow not brilliant enough to work out to play one, so they had to bid a little higher to accommodate those thousands out there. Maybe they just cared more, since the prize in the first game was a loaf of bread I'd baked the night before while the second prize is real live points. The reader can surely come up with a few more stories.

Subjects are supposed to just respond to the payoff table, but then there's an interpretation on top of the payoff table where C is good and societally beneficial and D is self-interested and bad. There's an interplay between the story and the payoff table which we just don't really understand, and until we do, we should be circumspect about saying that somebody who plays D often in the lab will be uncooperative here in the Lab of Life. But such problems of generalization are true of any experiment in any field.

Unique to game theory is the difficulty of ferreting out what subjects' actions indicate about what people are thinking. If a hyperrational person played the beauty contest on day one, s/he'd still not want to play one, because our hyperrational friend knows the others won't play one; the graduate TA is in Figure 1 somewhere, and his bid was in the hundreds. The class changed nothing about him but did change his knowledge of what other people are thinking, so that if he'd bid again the second time around, he'd surely bid lower. Other students may just be better at math having churned through too many algebraesque problems. The whole point of game theory is to study the interactions of your beliefs with your beliefs about the beliefs of others with their beliefs about your beliefs about them, ad nauseum; one game can never disentangle simultaneous changes in all of these things.

Barring a slip from time to time, the authors in the game theory literature know this. However, studies reported in the popular press always drop the subtlety of the field entirely, so we get the sort of conclusions above: business school makes you evil. Actually, it updates your information about other business schoolers, and makes you more familiar with cooperation, and helps you better disentangle payoffs from the stories told about payoffs, and maybe makes you evil—and does all of these things at once. All of these studies (gender, b-school, beauty contest) show that there's definitely something going on that's worth paying attention to, but it'll be a few decades before we can ferret out exactly what.

References

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