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Friends--

As most of you know, since May, 2007, I have been working on a case in Connecticut. Inmates on death row alleged that their sentences had been made within a racially discriminatory system, and therefore should be declared invalid. These "petitioners" engaged John J. Donohue, III, at that time a professor of law at Yale, as their statistical analyst, their expert. I was the state's, the "respondents'" expert analyst.

There were few other witnesses at the trial, which took place within a maximum security prison, in September through December, 2012. (Petitioners had a right to attend a trial at which their lives were at issue, and the state decided that transporting them to a court house was too risky. After a security check, the judge, attorneys, experts and assistants all were locked in the prison for the day. The murderers, shackled to steel tables, were in attendance. As the public, also, had a right to know what was going on in their court system, the trial was available on the internet from a single camera.)

An expert's analysis is "hearsay," not necessarily allowed into evidence as an exhibit. The usual procedure is for both sides to agree not to raise a hearsay objection, allowing the experts to present their opinions and argument in written form. Petitioners did not want the reports placed in evidence. They may have made this decision in order to keep my detailed description of Donohue's failure to produce a data base from the eyes of a judge. Or they were embarrassed by Donohue's sycophantic references to "the towering" John Tukey, the "magisterial" Franklin Fisher, the "eminent" Fred Mosteller, etc. Or perhaps they knew that, at the last moment, they would produce new exhibits (as they did). Whatever the reasoning, there are no expert reports in the record of this case.

Petitioners' previous experts, Neil Alan Weiner and colleagues, produced a report in 2003, based on 105 defendants who, since 1973, might have received a death sentence. Petitioners suppressed that report until 2008. The data on those 105 defendants survived, but coding continued on 126 additional defendants. (One case that should have been coded was not.) Donohue's first task was to extend the original data base by key entering the additional cases and appending them to the already existing data base.

Over 600 data items, which could be made into many more than 600 variables, were coded for each case. In the world of "big data," this is minuscule. Nonetheless, an academic, Donohue did not have the skill to append the new data to the old. He reported that "columns did not line up." He then defined a few variables, insisting they were sufficient. His student assistants coded them into a small data base. After a year of argument

about discovery—Donohue and his clients insisting that he had no obligation to provide variables other than those he had "used"—the court ordered that all data be turned over to respondents. Given the raw data, I easily made a complete analytic data base, formulated variables to explore, and found that Donohue's analysis included defendants under age 18, who could not have been sentenced to death.

That Donohue could not perform this simple data management task surely was embarrassing, but it would not have been fatal. All he had to do was thank me and continue his work using the data base I provided—which is what I would have done had he been successful. A trial judge is not interested in a squabble about who built the data base—or failed to. Donohue's infantile behavior raised his technical failure to importance, as it prevented him from doing his job correctly.

He stuck with this position, that he did not need to explore variables other than those he had pre-selected. All judicial discussions of the responsibilities of the statistical analyst (Bazemore v. Friday, McCleskey v. Kemp among them) instruct the expert to look for "neutral" variables that might explain relationships that, without such controls, seem to link the outcome (here, the death sentence) to race. Donohue's failure to do the exploration judges and justices insist upon was fatal.

Donohue made conceptual errors, also understood by the judge. Among them was his answer to the question, "what is an observation." To Donohue, each defendant was a single observation. In discrimination cases, each decision is an observation. Thus a defendant who appeared before two penalty panels appears twice in my data, but once in Donohue's. If the issue were hiring, would Donohue consider only an applicant's last application? An estimating equation assesses the importance of characteristics, not people, to a decision. Also, in a hiring case, the dependent variable, the action under investigation, is an offer, not a hire. Thus I carefully used the phrase "death sentence," not "death penalty," because what penalty the defendant ultimately got, after Supreme Court review, should not be the issue.

By "explaining" only a defendant's final outcome, Donohue omitted several death sentence decisions. For example, he failed to include a death sentence for a Hispanic who killed a Hispanic, and another in which a white man killed two black people, both decisions reversed by the Connecticut Supreme Court. He called both decisions "life in prison," when neither was.

In Judge Sferrazza's October 11, 2013 opinion in this case, petitioners' claims are dismissed. Correcting the spelling of names:

> Doctor Michelson's main criticism of Doctor Donohue's approach, and one that the court finds compelling, is that Doctor Donohue never attempts to parse out the root causes of the outcomes displayed by his regression

> analysis. When one observes unusual statistical results, it behooves the analyst to investigate further to discern what events could trigger such unexpected or rare relationships.

Through the years of this litigation, many people had surmised that "of course" Connecticut juries, which would be dominated by whites, would more likely sentence black defendants with white victims to death, "all else equal." The New York Times had published an article explaining Donohue's analysis, stating such a conclusion, controlling for student evaluations of the "egregiousness" of the crimes. The Times has not yet reported this opinion—over two months later. How would they explain that their earlier article touted an analysis that was rejected by the judge?

I like to "win" as much as anyone, but I am not happy with the opinion. For example, after accepting that observations should be decisions, not defendants, Judge Sferrazza reported Donohue's counts of defendants. Donohue's failure to recognize all decisions as evidence of how juries decide, and his retaining, in his analysis of sentencing, defendants who had been acquitted of capital felony charges, are as important errors as his refusal to analyze the data. The judge does not mention them.

Death sentence eligibility is revised over time. Lack of probable cause, being found not guilty, or plea bargains, remove death eligibility. An analysis should replicate real world events, but Donohue's sentencing equations, including ineligibles and ignoring actual panel decisions, are models of "selection bias." If you have to pass a valid test to be considered for a job, and you fail that test, your other characteristics do not matter. You should not be in the data used to derive the characteristics distinguishing those offered the job.

By trial, Donohue had moved to a professorship at Stanford where, he told the court, he taught discrimination law. Yet he confused disparate treatment (in penalty panel decisions) with disparate impact (of Supreme Court decisions). So much for credentials, or even academic competence!

The results of Supreme Court review did have a disparate impact. The same equation that produces a "significant" race coefficient for Donohue does not do so using my concepts of observations and outcomes. Substituting good explanatory variables for Donohue's, I more than doubled the explanatory power of his equations, finding zero effect of race on the sentence. I did this with different sets of variables, demonstrating that any competent analysis would have come to my conclusion.

There will be an appeal. The Connecticut Supreme Court will have a chance to declare that their own legal analyses were valid. Even if the New York Times ignores it, I will report the final decision at my forthcoming site:

www.StatisticsInLaw.com