

Activity

Hiring Discrimination: It Just Won't Fly!

(from *The Practice of Statistics*, 5th Ed, Starnes, Tabor, Yates, and Moore)

An airline has just finished training 25 junior pilots – 15 male and 10 female – to become captains. Unfortunately, only eight captain positions are available right now. Airline managers announce that they will use a lottery process to determine which pilots will fill the available positions. The names of all 25 pilots will be written on identical slips of paper, placed in a hat, mixed thoroughly, and drawn out one at a time until all eight captains have been identified.

A day later, managers announce the results of the lottery. Of the 8 captains chosen, 5 are female and only 3 are male. Some of the male pilots who were not selected suspect that the lottery was not carried out fairly. One of the pilots knows that you are taking a statistics class, and comes to you for advice. You offer to consult with your classmates and get back to him.

The key question in this possible discrimination case seems to be: Is it plausible (believable) that these results happened just by chance? To find out, you and your classmates will simulate the lottery process that airline managers said they used.

We will use beans to represent the pilots. The red beans will represent males. The beige beans will represent females. Each group should collect materials: 15 red beans, 10 beige beans, and a brown bag. Place the beans in the brown bag and shake the bag up to mix the beans.

1. Without looking, remove 8 beans from the brown bag. Count the number of female pilots (beige beans). Then return the beans to the brown bag.

2. A graph with labeled axis for a class dotplot is set up. Place a round sticker on the dotplot for the outcome you got in step #1.

3. Repeat steps #1 and #2 twice more (each group should put up three stickers on the dotplot).

4. Discuss the results with your partner. Does it seem believable that airline managers carried out a fair lottery? What advice would you give the male pilot who contacted you?

5. Would you advice change if the lottery had chosen 6 female (and 2 male) pilots? Explain.