Practice Quiz 2
G572
Spring 2023

The actual quiz will be Friday noon-11:59pm and you will have up to 40 minutes to complete it during that window (the full 40 minutes assuming you start by 11:19pm).

1. To make a good passive prediction we must have which of the following:
    a. Observational data
    b. Experimental data
    c. An exogenous model
    d. An endogenous model

2. To make a good active prediction we must have which of the following:
    a. Observational data
    b. Experimental data
    c. An exogenous model
    d. An endogenous model

3. If gender in a data set is a binary variable defined as female = 1 and male = 0, which of the following is more likely to have a negative correlation for adults in the U.S. (this requires a little bit of outside knowledge, but not much)? (college degree = 1 for those that have a college degree)
    a. Age and college degree (years 1920-1940)
    b. Age and college degree (2010-2020)

4. Which kinds of models can have exposure to confounding factors?

    a. Those used for passive prediction
    b. Those used for active prediction
    c. Both of the above
    d. None of the above

5. In the following model, the estimate of b_1 tells us how Y moves when X_1 increases by 1 unit.

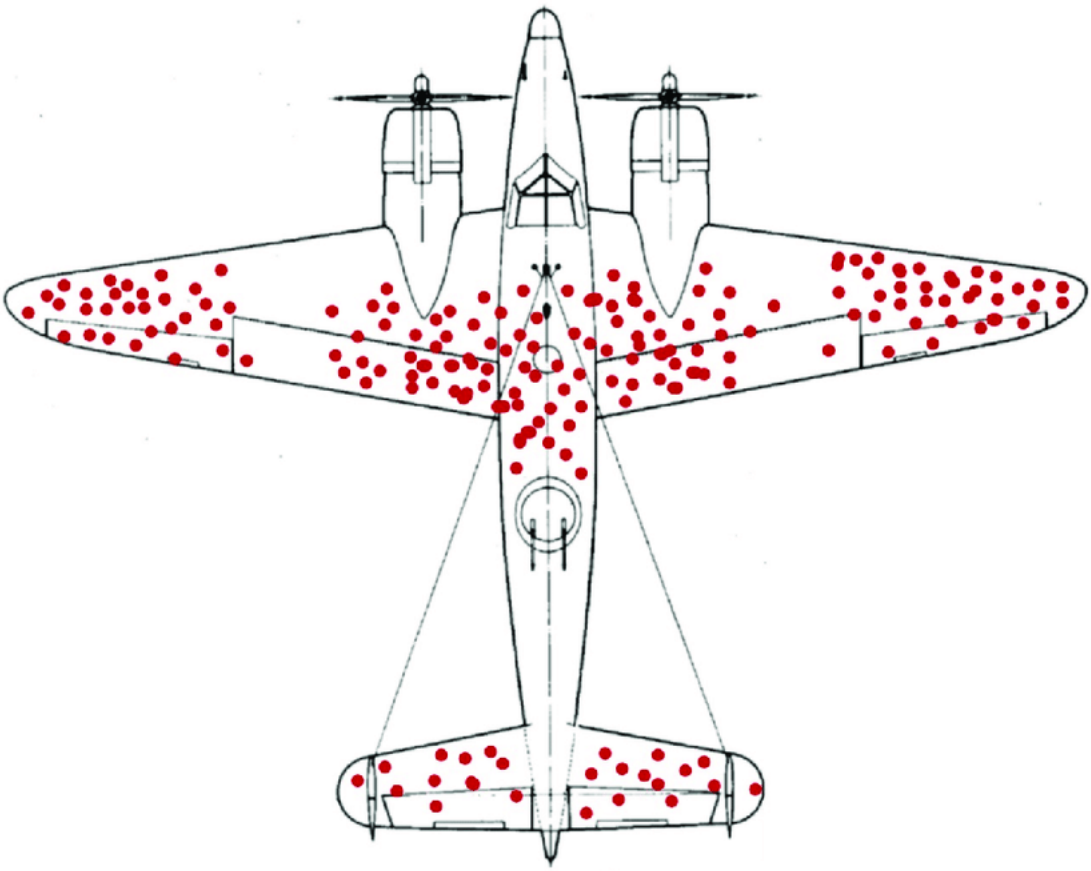
$$Y = b_0 + b_1X_1 + b_2X_2 + U$$

   a. True
   b. False

6. Any prediction having to do with price as an X variable will always be an active prediction.
   a. True
   b. False

7. In an RCT, if we regress the outcome (Y) on the treatment (X) , X will be exogenous.
   a. True
   b. False

8. Suppose Kroger has let the regional managers for each region in the U.S. set their own marketing budget for television ads. Which of the following is most likely to be a confounding factor in the impact of advertising on sales (assume you currently have no data on anything other than sales and TV ad spending) in the U.S.?
   a. Number of national sporting events occurring
   b. Population in region
   c. Both of the above
   d. None of the above

9. 

Use this image of a plane (as discussed in class) and where bullet holes were distributed to answer this question. “If we increase the armor over the fuselage, fewer planes will be shot down” is an example of a _____ prediction.

   a. active
   b. passive

10. *Randomizing the assignment of the treatment ensures that the estimated coefficient will be a good estimate of the average treatment effect (the average of the causal effect for the entire population).*
    a. True
    b. False