WWS 403 Methods Lab

Lecture 3

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TONIGHT

The Plan

Announcements: Brief debrief and extra sessions

Part 1: How to get people to vote?

Part 2: What should I put in my model? β

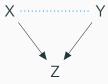
Lab: Because we love labs

EXTRAS: SELECTION ON THE DEPENDENT VARIABLE

Even when there is no causal link between X and Y



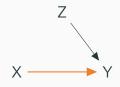
conditioning on Z will create spurious association.



This is why selecting cases on the dependent variable is problematic.

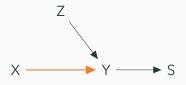
This is why selecting cases on the dependent variable is problematic.

Assume Z raises Y but does not affect X

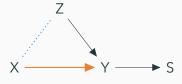


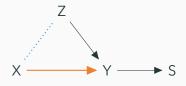
Z is not a confounder

However, if we select (S) only units with, say, high Y

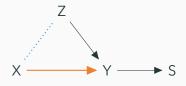


Then we will see spurious association between X and Z





This subsample will have more high Z units with low X and more low Z units with high X than the population.



This subsample will have more high Z units with low X and more low Z units with high X than the population.

So effect of X on Y will seem to be *larger* than it really is.

This effect occurs regardless of whether Z is measured.

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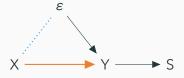
Assume Z is *not* measured. Then it is part of the error term in the regression

$$Y = a + X\beta + \varepsilon$$

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Assume Z is *not* measured. Then it is part of the error term in the regression

$$Y = a + X\beta + \varepsilon$$



 ε is now correlated with X because of the selection, so $\hat{\beta}$ no longer estimates β .