Last class

Paper -- due Monday March 15
- hope everyone has finished their analysis and is writing it up
- 1/2 is analysis 1/2 is writing.

1 1/2 space -- ~~email to me~~ submit as attached in "Assignments"

Evaluations -- for Paul!!

How big a sample do I need to detect a noteworthy effect of X on Y?

X is some policy of interest or some other IV of interest

Y is the outcome

what is noteworthy?

Rare when ed interventions have ES of ≥ .20 sd

Building Blocks was an exception but only in 1st 2 years

In non-experimental studies 1 sd Δ in, say, EF has a .20, .30? effect in later math

Let's say .20 sd [vs. Cohen's rules]

.2 is small

.5 is medium

.8 is large

Cohen's rules ≥ .80 big

How big a sample do get a .20 sd?

.20 sd is the minimum detectable effect goal for the sample

Bloom MDE is the smallest effect that, if true, has an X (=80)% chance of producing an estimate that is statistically significant ~~significant~~ at the Y (=.05) level

Less formally, MDE is the smallest true impact that your experiment/regression has a good (80%) chance of detecting.

Incredibly important idea that will save you much heartache. If you have a great idea for an intervention and it generates an impact of .25 (.20) and s.e. of .20, then you're sunk.

How to determine if your sample is big enough.

1. Do the calculation

G*Power, OD

2. Look at your standard errors

Get some idea of what to get.

BFY as an illustration

Literature suggests .06 sd per $1,000 of extra income.

We picked $4,000 and an expected effect size of .20 sd

How many cases?

G* Power

- play around to get power for 800 cases
- change the allocation ratio

Repeat with DD

- change MDES
- introduce a powerful baseline predictor

New link to SEs

$$2.8$$

Bloom shows that MDE from a regression is

2.8 × standard error

⇒ If we find a data set with $n = 800$ and an age 3 cognitive outcome and regress it on gender we should get a standard error of $.20/2.8$

$= .0714$

Go over power analysis in BFY proposal.
(document in CANVAS)

Beyond OLS

Adjustment	Affect Coefficients	Affect SEs	Big deal?
Robust standard errors ", robust"	No	yes	No
Clustered standard errors , cluster(school ID)	No	yes	yes; HLM does the same thing
Robust regression rreg	yes	yes	yes, if outliers
Quantile regression qreg	yes	yes	Can be very useful for outliers for fifty to default points in distribution.
Constrained regression Fixed effects xtreg	yes	yes	yes -- could adjust for bias

Adjustment	Affect coefficients	SEs	Big deal
constrained regression cnsreg	yes	NO	Not usually
truncated dep var regression tobit			
errors-in-variables adjustment eivreg	yes	NO	alternative to SEM