Typical Framework

	Y	X	u
	dependent variable	indep. var.	unobserved
e.g.	productivity of firms	exports	managerial quality
	wage	education	ability

$E(Y)$: expectation / expected value of Y.

avg. from every item in popul. from which sample is drawn

e.g. $E(\text{wage})$

$E(\text{pollution})$

conditional expectation of Y given X

$E(\text{wage} \mid \text{put. univ.})$ → avg. from every item in popul. with put. univ.

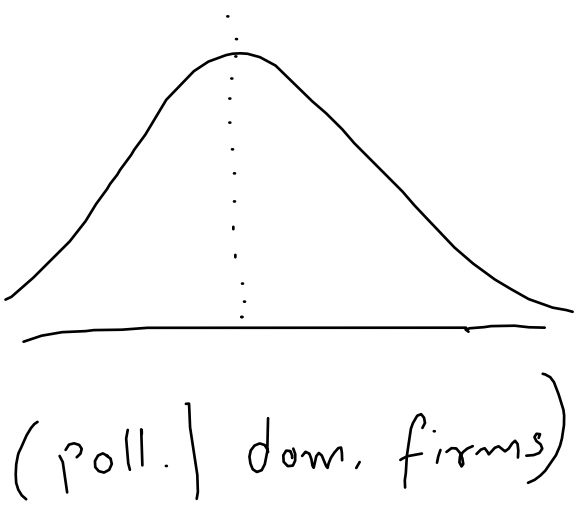
↳ given cond'al on

$E(\text{pollution} \mid \text{exporter})$

$E(\text{wage} \mid \text{educ.}) = 10 + 0.5\ \text{educ.}$

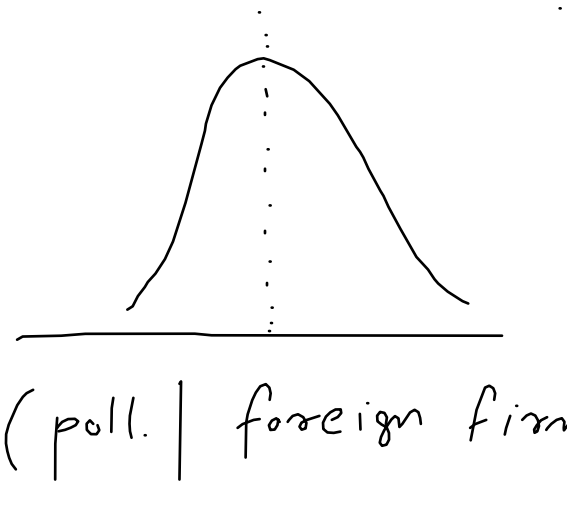
$V(Y)$ = variance ; summary of variability

E (poll. | dom. firms)



V (poll. | dom. firms)

E (poll. | foreign firms)



V (poll. | foreign firms)

E(wage) may depend on educ.

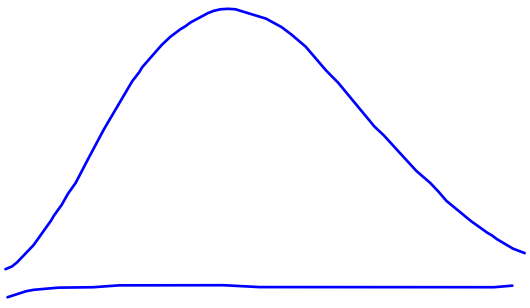
V (wage) "

Sample → avg. bwts.

$\bar{y}_1$: sample avg. of y in sample 1

$\bar{y}_1$ $\bar{y}_2$ . . . . $\bar{y}_{500}$

bwt. (y)



avg. bwt. ($\bar{y}$)