What do we get from these assumptions? We get relations between our estimates and our population parameters. That is, we get INTERNAL VALIDITY.

→ Unbiasedness:

$$E[\hat{\beta}_k] = \beta_k$$

→ Consistency:

As $n \to \infty$ $\hat{\beta}_k \to \beta_k$

More formally, for all $\varepsilon > 0$,

$$P[|\hat{\beta}_k - \beta_k| < \varepsilon] \longrightarrow 1 \quad \text{as } n \to \infty$$

Additionally, these assumptions gaurantee that

$$\frac{\hat{\beta}_k - \overbrace{\beta_k}^{\text{Population param.}}}{SE(\hat{\beta}_k)} \xrightarrow{d} N(0,1)$$

2more
- Assymptotic dist. of $\hat{\beta}$?
- Testing
- Controls.

So, we can test null hypotheses of "$\beta_k = a$" by asking, "given what we see, how likely is it that $\frac{\hat{\beta}_k - a}{SE(\hat{\beta}_k)}$ truly is $\xrightarrow{d} N(0,1)$"

SAVE UNTIL LATER *