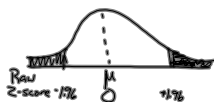


Hypothesis Testing



Previous Hypothesis Testing Examples

- From linear regression:

- ↳ t-value
- ↳ "Sig." (p-value)
- ↳ Probability that the coefficient is zero

Hypothesis testing

- ↳ Null hypothesis
 - ↳ e.g. what you're testing.
- ↳ Alternative hypothesis
 - ↳ e.g. what else could happen.

Null hypothesis

- What you are testing e.g.:
- There is no relationship between relocation and wages (aka, no correlation)
 - $H_0: R = 0$
- There is a positive relationship between reading to kids and literacy.
 - $H_0: R > 0$
- The slope between economic growth and unemployment is -2%
 - $H_0: \beta = -2\%$

Alternative hypothesis

↳ "Everything else"

When $H_0: R = 0$

$H_a: R \neq 0$

When $H_0: R > 0$

$H_a: R \leq 0$

When $H_0: \beta = -2\%$

$H_a: \beta \neq -2\%$

Steps for hypothesis testing (aka scientific method)

- ① State your null and alternative hypothesis.
- ② Determine your level of confidence (typically it's 5%)
- ③ Determine your critical value (typically 1% when confidence is 5%)
- ④ Conduct statistical test (e.g. regression)
- ⑤ Draw conclusion

Ex: Labor Force Participation of Females.

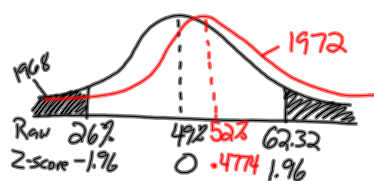
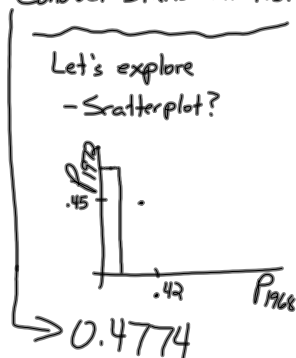
- ① Greater liberation of women's rights.
- ② Higher inflation eroding family incomes.
- ③ Increasingly Liberal views of divorce

→ Hypothesis: the participation of women in the labor force has increased between 1968 and 1972.

P_{1968} = proportion of women who work in 1968.

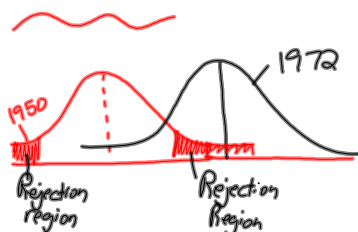
P_{1972} = " " " " 1972

- ① $H_0: P_{1972} > P_{1968}$
 $H_a: P_{1972} \leq P_{1968}$
- ② Confidence Level: 5%
- ③ Critical Value: 1.96
- ④ Conduct Statistical test



$-1.96 < -0.4774 < 1.96$
Reject null hypothesis

⑤ Conclusion: Women did not participate at higher rates in the labor force in 1972 compared to 1968.



	A	B	C	D	E	F	G	H	I
16	Minn/St. P:	0.59	0.5						
17	Buffalo	0.64	0.58						
18	Houston	0.5	0.49						
19	Patterson	0.57	0.56						
20	Dallas	0.64	0.63						
21	AVERAGE	0.526842	0.493158	0.033684	0.4774				
22	STD. DEV	0.070793	0.067991	0.070558					
23									
24									
25									
26									

0.033684
 0.070558

Pooled t-statistic

