
SOLUTIONS TO

TEST YOUR KNOWLEDGE: Two Sample Test for Proportion

1. A researcher is interested in comparing the foreclosure rates on mortgages issued to men and women. The data is below:

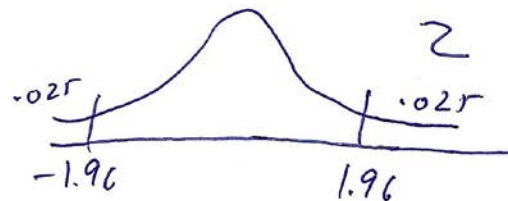
Men: Out of 500 mortgages issued to men, 65 resulted in a foreclosure.

Women: Out of 200 mortgages issued to women, 18 resulted in a foreclosure.

Test whether the difference between the proportions of the two groups is significant at an alpha (significance level) of .05.

- What are the null and alternate hypotheses?
- Draw the picture of the distribution of the test statistic (under H_0). Include critical value(s) and region(s) of rejection.
- What is the calculated (computed) value of the test statistic?
- What is your conclusion?

$$H_0: p_1 = p_2$$
$$H_1: p_1 \neq p_2$$



$$\bar{p} = \frac{83}{700} = .119$$

$$p_{s1} = \frac{65}{500} = .13$$

$$p_{s2} = \frac{18}{200} = .09$$

$$Z = \frac{.13 - .09}{\sqrt{.119(.881)\left(\frac{1}{500} + \frac{1}{200}\right)}}$$

$$\frac{.04}{\sqrt{.000734}} = \frac{.04}{.027} = 1.48$$

Do Not
Reject