PSCI2300 The Study of Politics
Bivariate Analysis Lab Session 3

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Independent variable with two categories → use t-test
Independent variable with more than two categories → use ANOVA
Example: Does gender make a difference in the feeling thermometer score on Hilary Clinton?

Syntax commands

```
t-test
groups = v081101
/variables = V083040.
```
The mean thermometer score for male respondents is 59.12.
The mean thermometer score for female respondents is 65.85.
Degrees of freedom = \( (N - 2) \) where \( N \) denotes the total number of cases

\[ t(\text{obtained}) = 2.106 \]

\[ t(\text{critical}) = 1.645 \text{ (One-tailed test)} \]

Since the \( t(\text{obtained}) > t(\text{critical}) \), we can reject the null hypothesis that there is no significant difference in the thermometer scores between two gender groups.

We conclude that there is a statistically significant difference in the thermometer score on Hilary Clinton.
Does gender make a difference in the feeling thermometer score on Barack Obama?

Syntax commands

```plaintext
t-test
groups = v081101
/variables = v083037a.
```
Example: Do people in different income groups have significantly different feeling thermometer scores on George W. Bush?

Recode the income variable
v083249 (1 thru 12=1)(13,14,15,16,17=2)(18 thru 25 =3) into income.
value labels income 1 "Low" 2 "Middle" 3 "High".
execute.

Conduct an ANOVA test
oneway
v083036 by income
/statistics descriptives.
The mean thermometer score for lower income people is 36.62
The mean thermometer score for middle income people is 37.75.
The mean thermometer score for upper income people is 40.64.

Degrees of Freedom = \((df_1, df_2) = (k - 1, N - k)\)
where \(k\) denotes the number of categories in the independent variable and \(N\) denotes the number of cases.

\(F\text{(obtained)} = 2.259\)
\(F\text{(critical)} = 2.996\)

Since the \(F\text{(obtained)} < F\text{(critical)}\), we cannot reject the null hypothesis that there is no significant difference in the thermometer scores on George W. Bush between three income groups.
Test the relationship between race (black or white: v081102) and the feeling thermometer score on the Democratic party (v083037a).

Test the relationship between income and ideology (v083069).