Goodness of Fit

LECTURE 19

Objectives

- Define terms.
- Understand the rationale and basis for goodness of fit methods.
- Describe the different types of X^2-tests.
- Perform X^2 tests of independence and goodness of fit.

Overview

- Comparison of observed frequencies with expected frequencies – the expected values are based on a particular theory or hypothesis (you have to have some expectation of how the data should be distributed).
- Relatively easy calculations

Overview

- Mastery of the techniques lies in determining the expected frequency of the data.

X^2

- Different varieties of chi-square test
  - Homogeneity – The variance test we have done earlier.
  - Randomness – Few uses
  - Association – Many uses – not enough time
  - Independence – The test we learn today.
  - Goodness of fit – The test we learn today.
- Uses nominal scale data and is therefore a nonparameteric technique

Assumptions

- Random samples
- Independent samples
- No more than 20% of the expected values are less than 5 and none of the expected values are less than 1.

Example

- Example 24

X^2 test of independence

- Use this test when you want to confirm that nominal scale data is or is not influenced by another nominal variable.
- Use the ten-step to setup the problem.

Example

- Example 25