



INTRODUCTION TO INFERENCE STATISTICS

A. A contrast . . .

1. Descriptive statistics summarize, display, graph quantitative information
2. On the other hand, inferential statistics, also known as statistical inference



A contrast . . . (cont'd)

- a. is the process of estimating (population) parameters from (sample) statistics

- b. or is the process of determining the amount of random error in data, i.e., determining how likely data are by chance alone



A contrast . . . (cont'd)

3. Definitions of inferential statistics

- a. Spatz (1997, p. 389): “a method of reaching conclusions about unmeasurable populations by using sample evidence and probability”

- b. Vogt (1999, p. 277): “Using probability and information about samples to draw conclusions (‘inferences’) about a population or about how likely it is that a result could have been obtained by chance.”



B. Doing inferential statistics

1. Among the most valuable and commonly used inferential techniques are testing hypotheses and generating confidence intervals on μ

2. We will explore both of these techniques
 - a. first we will generate confidence intervals on μ under two different conditions
 - (i) when we know σ , a most unusual situation

 - (ii) when we don't know σ , the usual situation



Doing inferential statistics (cont'd)

- b. we will then explore only one of the many ways of formally testing statistical hypotheses
 - (i) another name for testing statistical hypotheses is tests of or for statistical significance
 - (ii) we will use the χ^2 (chi-square) technique to test hypotheses for categorical data



Doing inferential statistics (cont'd)

- (iii) there are many other statistical tests of/for hypotheses useful in research in Information Studies, e.g., t-tests, analysis of variance (ANOVA), and so on, but time constraints will limit our discussion to χ^2 (chi-square)

- (iv) I strongly encourage you to go further in your study and use of inferential statistics – you will benefit from doing so both as a researcher and as a reader of others' research