

BUS 735: Business Decision Making and Research

Instructor: Dr. James Murray

Fall 2013

Homework due on Tuesday, October 15.

When testing a hypothesis, indicate first what statistical method you are using, along with a one sentence explanation for why you chose the test. Be sure to report all appropriate steps when conducting hypotheses. Also include in your typed answers the SPSS tables that you reference for your hypothesis tests.

1. The first part of the assignment is an extension from your previous homework assignment using the dataset `cex.sav`. This is recent (2010:Q2) consumer income data from the Current Population Survey. The variables included in this SPSS file include:
 - Age (in years)
 - Relationship to head-of-household: 1=head of household, 2=spouse, 3=child or adopted child of head, 4=grandchild of head, 5=in-law of head, 6=brother/sister of head, 7=mother/father of head, 8=other relatives, 9=unrelated individual, 0=na.
 - Education: 00=Never attended school, 1-11 1st grade through 11th grade, 38=Twelfth grade no degree, 39=High school graduate, 40=Some college no degree, 41=Associate's degree (occupational/vocational), 42=Associate's degree (academic), 43=Bachelor's degree, 44=Master's degree, 45 =Professional degree, 46=Doctorate degree
 - Race: 1=white, 2=black, 3=American Indian or Aleut Eskimo, 4=Asian or pacific islander, 5=other
 - Gender: 1=male, 2=female
 - Marital Status: 1=married, 2=widowed, 3=divorced, 4=separated, 5=never married
 - Employee Status: 1=member worked full time for a full year, 2=member worked part time for a full year, 3=member worked full time for part of year, 4=member worked part time for part of year, blank if member did not work.
 - Employee Type: 1=private company, 2=government employee, 3=self-employed, 4=working without pay.
 - Hours worked per week
 - Weeks worked per year
 - Occupation: 01=managerial and professional specialty occupation, 02=technical, sales, and administrative support occupations, 03=service occupations, 04=farming, forestry, and fishing occupations, 05=precision production, craft, and repair

occupations, 06=operators, fabricators, and laborers, 07=armed forces, 08=self employed, 09=not working, 10=retired, 11=other, including not reported.

- Total Income: in dollars.

- (a) Accounting for education level, is there a relationship between race and income?
 - (b) In your previous analysis, is there an interaction effect between race and education level when explaining income? If so, look at the means for each subgroup and describe how the effect of education on income is different for different races.
 - (c) Accounting for occupation type, is there a relationship between race and income?
 - (d) In your previous analysis, is there an interaction effect between race and occupation when explaining income? If so, look at the means for each subgroup and describe how the effect of race on income is different for different occupations.
2. Enter the raw data from SAB, page 254 concerning ESL scores for speaking, writing, and reading for 60 international students; then answer the following questions. When conducting a hypothesis test, indicate what statistical method you are using, and remember to include all necessary steps of the hypothesis test.
- (a) Is there a difference in speaking proficiency between men and women?
 - (b) Is there a difference in reading proficiency versus writing proficiency?
 - (c) Are there differences in proficiency between the three categories: speaking, reading, and writing? If so, answer which categories are significantly different and rank the categories from highest to lowest.
 - (d) Accounting for differences in gender, are there differences in proficiency between the three categories: speaking, reading, and writing?
 - (e) Is there an interaction effect between category of proficiency and gender? If so, simply examine the means (no further hypothesis testing) and describe how the differences in reading, writing, and speaking proficiencies depend on gender.