BUS 735: Business Decision Making and Research
Instructor: Dr. James Murray
Fall 2010
Homework: Consumer Income, Week of Oct 7 - Oct 13

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, for each hypothesis test, report the sample size (this will change with missing observations). The homework assignment uses the dataset `cex.sav`. This is the latest (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.

1. Not accounting for any other variables, is there a relationship between race and income? If so, what race has the highest average income? Is this average income statistically significantly different from each of the other races? Which ones?

2. Not accounting for any other variables, is there a relationship between occupation and income? If so, what occupation has the highest average income? Is this average income statistically significantly different from each of the other occupations? Which ones?

3. Transform Education into a new variable with the following categories:

   (a) =1 if High School graduate or less

   (b) =2 if Any college below a Bachelor's degree (40<EDU<43)

   (c) =3 if Bachelor degree

   (d) =4 if Masters, professional, or doctorate degree

   Not accounting for any other variables, is there a relationship between education (as defined by your new variable) and income? If so, which education level has the higest income? Is this average income statistically significantly different from each of the other levels of education? Which ones?

4. Accounting education level, is there a relationship between race and income?

5. 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.

6. Accounting for occupation type, is there a relationship between race and income?

7. 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.