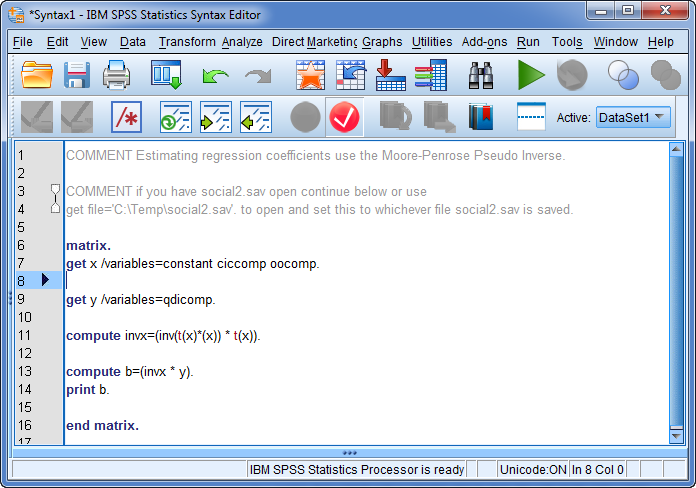
Lab #3

Multiple Regression

Copy and paste any results and write out your answers in the text boxes provided.

**Matrix Functions in SPSS**

1. **Finding estimates of B using matrix command in SPSS**
   1. Open the “**social2.sav**” data set from the web so that everyone has the same version.
   2. Go to **transform** 🡪 **compute variable** and enter **constant** = **1**  .
   3. Open SPSS and go to **File** 🡪 **New** 🡪 **Syntax**
   4. Type into the window (anything after COMMENT are notes or instructions):



* 1. Copy and paste the b values below and tell me what they mean (consider first line in syntax).

Paste the values and write your answer here.

**Regression in ARC**

1. **Simple regression**
   1. Using the **forclass.lsp** data, plot SOS (H) versus SOI (V), set OLS = 1. Click on the arrow next to OLS and choose display regression summary. Look back at the original ARC window; copy, paste and interpret the results below.

Paste the values and write your answer here.

* 1. Click on display summaries in the “**Forclass**” menu to obtain descriptives and the correlation between SOS and SOI. Copy and paste them below.

Paste the arc output here

1. **Multiple Regression**
   1. Using forclass.lsp still click on **Graph and Fit** 🡪 **Fit linear LS**. Move **a**, **e** and **sos** over to predictors and **soitot** over to response and click on OK. Back to the original ARC window; copy, paste and interpret results below.

Paste the output and interpret here.

* 1. Click on display summaries in the “**forclass**” menu to obtain correlations for a, e, sos and soitot. Do any of the correlations indicate multicollinearity, why or why not?

Answer here.

* 1. Go to **Graph and Fit** 🡪 **Multipanel plot**. Put **a**, **e**, and **sos** into changing axis and **residuals** into fixed axis. Does there seem to be a problem with heteroskedasticity on any of the variables? Explain.

Answer here.

Regression in SPSS

1. **Standard (Simultaneous) Regression**
   1. Open up the “**forclass.sav**” data set in SPSS. Go to **Analyze** 🡪 **Regression** 🡪 **Linear**. Give me **a**, **e**, and **sos** predicting **soitot**. Include estimates, model fit, r squared change, descriptives, part and partial correlations, collinearity diagnostics, a plot of zpred (x) and zresid (y), and save mahalanobis distances. Interpret and annotate the output.

Paste output here and annotate.

* 1. Compare the output to the output from ARC. Expect there to be a little difference because they use different estimation methods, but are the two outputs similar?

Answer here.

1. **User-defined Forward Sequential Regression.** 
   1. Do a user defined sequential analysis using the block function, predicting soitot by a, e and sos. The order should be a, e and sos, include r-square change. Copy, paste, annotate and interpret (CPAI) results.

CPAI Results here

1. **Forward Statistical Regression.** 
   1. Do a forward statistical regression and include a, e and sos (include r-squared change) predicting soitot.

CPAI and compare to #5 above

1. **Stepwise Regression**
   1. Do a stepwise regression including **sos**, **ego**, **n**, **e**, **o**, **a** and **c** predicting **soitot**. Include estimates, model fit, r squared change, descriptives, part and partial correlations, collinearity diagnostics, a plot of zpred (x) and zresid (y), and save mahalanobis distances.

CPAI results here

1. **Model Generalizability.** 
   1. Still using the “**forclass.sav**” data go to **Data** 🡪 **Select Cases** 🡪 **Random Sample of Cases** 🡪 **Sample**. Choose approximately 50%. **Continue** 🡪 **OK**.
   2. Go to **Transform** 🡪 **Compute Variable**. Put in **set** = **filter\_$** . Fit a simultaneous regression with **a**, **e**, and **sos** predicting **soitot**. Go back to **Data** 🡪 **select cases** 🡪 **If condition satisfied** 🡪 **If**. Type in **set** = **0**.
   3. Fit the exact same regression equation and compare the two outputs. Are the two outputs the same? Can you generalize the equation?

Do NOT CPAI, simply answer the question and explain your answer.

1. **Centering and Interactions.** 
   1. Open “**social2.sav**” in SPSS and make sure that **gender** is coded males = 0 and females = 1.
   2. Center both **ciccomp** and **oocomp** separately (call new variables **ciccent** and **oocent**). There are many ways to do this, one is to use the **Data** 🡪 **Aggregate** function.
   3. Predict **oocent** with **gender** and **ciccent** and interpret results (don’t forget to interpret the intercept since it is meaningful).

Do NOT CPAI, simply answer the question and explain your answer.

* 1. Cross multiply **gender** (0 and 1) and **ciccent** to make a new variable **gen\_cic** (use the **Transform** 🡪 **Compute Variable** function)
  2. Predict oocent by gender (0 and 1), ciccent and gen\_cic.

Do NOT CPAI, simply answer the question and explain your answer.

1. **Mediation using regression.**
   1. Still using “**social2.sav**” in SPSS, perform a Baron and Kenny style mediational analysis using **oocomp** as the predictor, **ciccomp** as the mediator and **qdicomp** as the outcome. Refer to the four steps from the powerpoint slides.

CPAI results of the mediational analysis

* 1. Test for a significant indirect effect using the Sobel test.

Show your work here and explain the answer.

1. **Freeform analysis**
   1. In the “**social2**” data set the variables are:

|  |  |  |
| --- | --- | --- |
| 1 | ciccomp | classroom interracial climate |
| 2 | qdicomp | discrimination index |
| 3 | srchcomp | ethnic identity search |
| 4 | eicomp | ethnic identity strength |
| 5 | subcomp | subgroup identity |
| 6 | oocomp | outgroup orientation |
| 7 | supcomp | superordinate identity |

1. Pick a few variables and create a hypothesis about how they might relate in a sequential analysis. Perform all appropriate tests on the variables (assumptions, transformations when needed, etc.). Describe the tests you conducted, the results (were the assumptions met or not, and describe any steps you used to fix problems (if any).

Do NOT CPAI. Simply describe the steps.

1. Perform the sequential analysis using SPSS.

CPAI results.

1. In the space below, write the hypothesis in a couple of sentences max and then write an APA style results section summarizing your results (refer to the end of chapter 5 and the class webpage for a couple of samples). Make sure to write the results so that anyone reading it can understand it (make it as clear as possible and in very simple language, explaining all technical terms).

Write out your hypothesis and write an APA style results section. Refer to the T&F book for an example.