Sociology 405/805
Winter 2004

Notes for t-test and MCA

1. t-test

Use *Analyze-Compare Means-Independent Samples t-test* and place the dependent
variable (the variable whose different means are being examined) in the *Test Variable*
box. Place the independent variable in the *Grouping Variable* box. This is the variable
that you are using to split the cases into two groups. Click on *Define Groups* and if there
are just two groups you are comparing, place the code for these two groups into the
Group 1 and *Group 2* boxes (e.g. if you were comparing attitudes between NDPers and
Conservatives, put 2 for NDP in *Group 1* and 3 for Conservative in *Group 2* and the t-test
would give the test for difference of mean attitude between NDP and Conservative). If
you wish to split all the cases in the file into two groups, decide how you plan to split
them and use the *Cut point* option. For example, if you want to compare those with
GPAR of 70 and above with those with a grade point average of less than 70, place 70 in
the *Cut point* box and click *Continue* and *ok*. The only point to be careful about here is to
remember that all the cases with value greater than or equal to the cut point will be in one
group and the remainder will be in the other group. For example, if you wanted to
compare those with a grade of 70 or less with those having a grade of greater than 70,
you would need to place a value just above 70 in the *Cut point* box.

Before requesting the t-test procedure, make sure you know the values of the independent
variable. If you are unsure of what these are, go to the *SPSS Data Editor* window and
click on *Variable View* and the *Values* column generally lists the values. If they are not
there, look at the values in the *Data View* window or request a frequency distribution, and
it should be possible to find the list of values for the variable.

2. Multiple Classification Analysis (MCA)

To obtain the multiple classification analysis, first load the data file *ssae98r.sav* and then
open a syntax window by clicking on *File-New-Syntax*. This produces a blank window,
where you enter the syntax commands for the *anova* procedure. In a syntax file, you
need to separate the words by spaces, commas, or the / sign and end each command line
with a period.

As an example try the command in problem set 3:

> *anova emp1 by future(1,3) pv(1,3)/method=hierarchical/statistics=all.*

The procedure is to write the word *anova* followed by a space and then the name of the
dependent variable whose means are being examined. Follow this with a space, the word
by, another space, and then the name and values of one independent variable being used

to classify the cases. Following the name of the first independent variable, in brackets place the values of that variable being used to classify the cases. In the above, the values from 1 to 3 of *future* are being used, since the request is to look at all the values from 1 of better off to 3 of worse off are being used. Following this variable, place another space and then type the name of the second independent variable, again followed by the values in brackets. In the above example, not all the values of *pv* are used, but only values 1-3, i.e. 1 of Liberal, 2 of NDP, and 3 of Conservative. For this example, those with value 4, no political preference are left out. This *anova* method actually provides a little more flexibility in that the values of the independent variable can be specified in advance (other methods use all the values of the independent variables unless *Select cases* is used).

After the list of variables, write a / followed by *method=hierarchical*. The MCA is only available with this method. Then write another / and *statistics=all.* Make sure to end the line with a period, otherwise SPSS will not process the command.

Once you have entered this line, highlight it and click on the right arrow button at the top, just below the word *Run*. SPSS should process the command and produce the anova table, descriptive statistics, and the MCA. If there are any errors in the command line, SPSS should tell you and, hopefully, you could correct them. You can have several command lines in the syntax file but make sure each line ends with a period. Then highlight the set of lines and again run by using the right arrow.

The SPSS output from the above example is displayed below. You might wish to reproduce this example prior to conducting your own MCA.

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Cell Means[b]

FUTURE Economic Future?	PV provincial political preference	EMP1 Jobs for Visible Minorities Mean	N
1 Better Off	1 Liberal	2.09	46
	2 NDP	2.18	67
	3 Conservative	1.61	49
	Total	1.98	162
2 About Same	1 Liberal	2.41	32
	2 NDP	2.39	69
	3 Conservative	1.89	28
	Total	2.29	129
3 Worse Off	1 Liberal	1.80	15
	2 NDP	2.88	34
	3 Conservative	2.52	21
	Total	2.54	70
Total	1 Liberal	2.15	93
	2 NDP	2.41	170
	3 Conservative	1.89	98
	Total	2.20[a]	361

a. Grand Mean

b. EMP1 Jobs for Visible Minorities by FUTURE Economic Future?, PV provincial political preference

ANOVA[a]

			Hierarchical Method				
			Sum of Squares	df	Mean Square	F	Sig.
EMP1 Jobs for Visible Minorities	Main Effects	(Combined)	32.097	4	8.024	6.870	.000
		FUTURE Economic Future?	16.936	2	8.468	7.250	.001
		PV provincial political preference	15.161	2	7.580	6.490	.002
	2-Way Interactions	FUTURE Economic Future? * PV provincial political preference	12.407	4	3.102	2.656	.033
	Model		44.505	8	5.563	4.763	.000
	Residual		411.135	352	1.168		
	Total		455.640	360	1.266		

a. EMP1 Jobs for Visible Minorities by FUTURE Economic Future?, PV provincial political preference

MCA[a]

				Predicted Mean		Deviation	
			N	Unadjusted	Adjusted for Factors	Unadjusted	Adjusted for Factors
EMP1 Jobs for Visible Minorities	FUTURE Economic Future?	1 Better Off	162	1.98	2.00	-.22	-.20
		2 About Same	129	2.29	2.26	.09	.06
		3 Worse Off	70	2.54	2.55	.34	.35
	PV provincial political preference	1 Liberal	93	2.15	2.17	-.05	-.03
		2 NDP	170	2.41	2.39	.21	.19
		3 Conservative	98	1.89	1.89	-.31	-.30

a. EMP1 Jobs for Visible Minorities by FUTURE Economic Future?, PV provincial political preference

Factor Summary^a

		Eta	Beta Adjusted for Factors
EMP1 Jobs for Visible Minorities	FUTURE Economic Future?	.193	.183
	PV provincial political preference	.193	.184

a. EMP1 Jobs for Visible Minorities by FUTURE Economic Future?, PV provincial political preference

Model Goodness of Fit

	R	R Squared
EMP1 Jobs for Visible Minorities by FUTURE Economic Future?, PV provincial political preference	.265	.070