

Scaling Lab

Scaling outline

- First add the country filter
- Then we will do Cronbach's Alpha
- Then Factor Analysis

Starting to make a one-dimensional scale with Cronbach's Alpha

issp2006steve.sav [DataSet1] - SPSS Data Editor

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	Name	Type	Label	Values	Missing	Columns	Align	Measure
1	v1	Numeric	ZA Study Num	{4700, ZA Stud	None	6	Right	Nominal
2	version	Numeric	Edition of the d	{1.0, First GE	None	9	Right	Nominal
3	v2	Numeric	Respondent ID	None	None	10	Right	Scale
4	v3	Numeric	Country/Sampl	{36.0, AU-Aust	None	7	Right	Scale
5	v3a	Numeric	ISO code of co	{36, AU-Austra	None	5	Right	Scale
6	v4	Numeric	Q1: Obey laws	{1, Obey the la	8, 9	4	Right	Nominal
7	v5	Numeric	Q2a: Public pr	{1, Definitely al	8, 9	4	Right	Nominal
8	v6	Numeric	Q2b: Protest d	{1, Definitely al	8, 9	4	Right	Nominal
9	v7	Numeric	Reliability Analysis...			4	Right	Nominal
10	v8	Numeric	Multidimensional Unfolding...			4	Right	Nominal
11	v9	Numeric	Multidimensional Scaling (PROXSCAL)...			4	Right	Nominal
12	v10	Numeric	Multidimensional Scaling (ALSCAL)...			5	Right	Nominal
13	v11	Numeric	Q5a: Gov. and	{1, Strongly in	8, 9	5	Right	Nominal
14	v12	Numeric	Q5b: Gov. and	{1, Strongly in	8, 9	5	Right	Nominal
15	v13	Numeric	Q5c: Gov. and	{1, Strongly in	8, 9	5	Right	Nominal
16	v14	Numeric	Q5d: Gov. and	{1, Strongly in	8, 9	5	Right	Nominal
17	v15	Numeric	Q5e: Gov. and	{1, Strongly in	8, 9	5	Right	Nominal
18	v16	Numeric	Q5f: Gov. and	{1, Strongly in	8, 9	5	Right	Nominal
19	v17	Numeric	Q6a: Governm	{1, Spend muc	8, 9	5	Right	Nominal
20	v18	Numeric	Q6b: Governm	{1, Spend muc	8, 9	5	Right	Nominal
21	v19	Numeric	Q6c: Governm	{1, Spend muc	8, 9	5	Right	Nominal
22	v20	Numeric	Q6d: Governm	{1, Spend muc	8, 9	5	Right	Nominal
23	v21	Numeric	Q6e: Governm	{1, Spend muc	8, 9	5	Right	Nominal
24	v22	Numeric	Q6f: Governme	{1, Spend muc	8, 9	5	Right	Nominal
25	v23	Numeric	Q6g: Governm	{1, Spend muc	8 - 2E+307, 0	5	Right	Nominal
26	v24	Numeric	Q6h: Governm	{1, Spend muc	8, 9	5	Right	Nominal
27	v25	Numeric	Q7a: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
28	v26	Numeric	Q7b: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
29	v27	Numeric	Q7c: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
30	v28	Numeric	Q7d: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
31	v29	Numeric	Q7e: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
32	v30	Numeric	Q7f: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
33	v31	Numeric	Q7g: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
34	v32	Numeric	Q7h: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
35	v33	Numeric	Q7i: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
36	v34	Numeric	Q7j: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
37	v35	Numeric	Q8a: Gov. suc	{1, Very succe	8, 9	5	Right	Nominal
38	v36	Numeric	Q8b: Gov. suc	{1, Very succe	8, 9	5	Right	Nominal
39	v37	Numeric	Q8c: Gov. suc	{1, Very succe	8, 9	5	Right	Nominal
40	v38	Numeric	Q8d: Gov. suc	{1, Very succe	8, 9	5	Right	Nominal
41	v39	Numeric	Q8e: Gov. suc	{1, Very succe	8, 9	5	Right	Nominal
42	v40	Numeric	Q8f: Gov. succ	{1, Very succe	8, 9	5	Right	Nominal
43	v41	Numeric	Q9a: Gov. deta	{1, Definitely s	8, 9	5	Right	Nominal

Add the items

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	Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measure
1	v1	Numeric	4	0	ZA Study Num	{4700, ZA Stud	None	6	Right	Nominal
2	version	Numeric	3	1	Edition of the d	{1.0, First GE	None	9	Right	Nominal
3	v2	Numeric	8	0	Respondent ID	None	None	10	Right	Scale
4	v3	Numeric	5	1	Country/Sampl	{36.0, AU-Aust	None	7	Right	Scale
5	v3a	Numeric	3	0	ISO code of co	{36, AU-Austra	None	5	Right	Scale
6	v4	Numeric	1	0						Nominal
7	v5	Numeric	1	0						Nominal
8	v6	Numeric	1	0						Nominal
9	v7	Numeric	1	0						Nominal
10	v8	Numeric	1	0						Nominal
11	v9	Numeric	1	0						Nominal
12	v10	Numeric	1	0						Nominal
13	v11	Numeric	1	0						Nominal
14	v12	Numeric	1	0						Nominal
15	v13	Numeric	1	0						Nominal
16	v14	Numeric	1	0						Nominal
17	v15	Numeric	1	0						Nominal
18	v16	Numeric	1	0	Q5i: Gov. and	{1, Strongly in	8, 9	5	Right	Nominal
19	v17	Numeric	1	0	Q6a: Governm	{1, Spend muc	8, 9	5	Right	Nominal
20	v18	Numeric	2	0	Q6b: Governm	{1, Spend muc	8, 9	5	Right	Nominal
21	v19	Numeric	1	0	Q6c: Governm	{1, Spend muc	8, 9	5	Right	Nominal
22	v20	Numeric	1	0	Q6d: Governm	{1, Spend muc	8, 9	5	Right	Nominal
23	v21	Numeric	1	0	Q6e: Governm	{1, Spend muc	8, 9	5	Right	Nominal
24	v22	Numeric	1	0	Q6f: Governme	{1, Spend muc	8, 9	5	Right	Nominal
25	v23	Numeric	1	0	Q6g: Governm	{1, Spend muc	8 - 2E+307, 0	5	Right	Nominal
26	v24	Numeric	1	0	Q6h: Governm	{1, Spend muc	8, 9	5	Right	Nominal
27	v25	Numeric	1	0	Q7a: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
28	v26	Numeric	1	0	Q7b: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
29	v27	Numeric	1	0	Q7c: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
30	v28	Numeric	1	0	Q7d: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
31	v29	Numeric	1	0	Q7e: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
32	v30	Numeric	1	0	Q7f: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
33	v31	Numeric	1	0	Q7g: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
34	v32	Numeric	1	0	Q7h: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
35	v33	Numeric	1	0	Q7i: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
36	v34	Numeric	1	0	Q7j: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
37	v35	Numeric	1	0	Q8a: Gov. suc	{1, Very succe	8, 9	5	Right	Nominal
38	v36	Numeric	1	0	Q8b: Gov. suc	{1, Very succe	8, 9	5	Right	Nominal
39	v37	Numeric	1	0	Q8c: Gov. suc	{1, Very succe	8, 9	5	Right	Nominal
40	v38	Numeric	1	0	Q8d: Gov. suc	{1, Very succe	8, 9	5	Right	Nominal
41	v39	Numeric	1	0	Q8e: Gov. suc	{1, Very succe	8, 9	5	Right	Nominal
42	v40	Numeric	1	0	Q8f: Gov. suc	{1, Very succe	8, 9	5	Right	Nominal

Reliability Analysis

Items:

- Q7d: Gov. respons
- Q7e: Gov. respons
- Q7f: Gov. respons
- Q7g: Gov. respons
- Q7h: Gov. respons
- Q7i: Gov. respons
- Q7j: Gov. respons
- Q8a: Gov. success
- Q5b: Gov. and eco
- Q5c: Gov. and eco
- Q5d: Gov. and eco
- Q5e: Gov. and eco
- Q5f: Gov. and eco
- Q6a: Government
- Q6b: Government

Model: Alpha

Scale label:

Buttons: OK, Paste, Reset, Cancel, Help, Statistics...

In the present example the score will be low

- Why?
- I did not RECODE the variables
- They should all go in the same direction so that the most points is either for government intervention or against it

Click on "Statistics." Choose "scale" and "scale if item deleted"

The screenshot shows the SPSS Data Editor window with a Reliability Analysis dialog box open. The Statistics sub-dialog box is also open, showing options for Descriptives for Scale, Inter-Item Correlations, and ANOVA Table. The background shows a list of variables and their properties.

Item	Model	Type	Confidence Interval	Test Value
v11	Alpha	Consistency	95%	0
v12	Alpha	Consistency	95%	0
v13	Alpha	Consistency	95%	0
v14	Alpha	Consistency	95%	0
v15	Alpha	Consistency	95%	0
v16	Alpha	Consistency	95%	0
v17	Alpha	Consistency	95%	0
v18	Alpha	Consistency	95%	0
v19	Alpha	Consistency	95%	0
v20	Alpha	Consistency	95%	0
v21	Alpha	Consistency	95%	0
v22	Alpha	Consistency	95%	0
v23	Alpha	Consistency	95%	0
v24	Alpha	Consistency	95%	0
v25	Alpha	Consistency	95%	0
v26	Alpha	Consistency	95%	0
v27	Alpha	Consistency	95%	0
v28	Alpha	Consistency	95%	0
v29	Alpha	Consistency	95%	0
v30	Alpha	Consistency	95%	0
v31	Alpha	Consistency	95%	0
v32	Alpha	Consistency	95%	0
v33	Alpha	Consistency	95%	0
v34	Alpha	Consistency	95%	0
v35	Alpha	Consistency	95%	0
v36	Alpha	Consistency	95%	0
v37	Alpha	Consistency	95%	0
v38	Alpha	Consistency	95%	0
v39	Alpha	Consistency	95%	0
v40	Alpha	Consistency	95%	0
v41	Alpha	Consistency	95%	0
v42	Alpha	Consistency	95%	0
v43	Alpha	Consistency	95%	0

Alpha Score in SPSS. Not so bad since in this example I did not recode the variables, so they all go in the same direction

Reliability Statistics

Cronbach's Alpha	N of Items
.675	16

We should delete variables that lower Alpha, which means $\text{Alpha} > .675$ if Alpha item Deleted. We see that the first question Q5a would increase Alpha if eliminated and that its correlation is negative (perhaps because it was not recoded?)

■ **Item-Total Statistics: Scale ---- if item Deleted**

	Mean IID	Var IID	CorrItTotCor	Alpha iIDeleted
■ Q5a: Gov. and economy: Cuts in gov. spending	38.48	38.062	-.037	.704
■ Q5b: Gov. and economy: Financing projects for new jobs	38.79	33.260	.417	.643
■ Q5c: Gov. and economy: Less gov. reg. of business	38.51	36.464	.103	.684
■ Q5d: Gae: Support industry to develop new products	38.58	33.468	.376	.648
■ Q5e: Gae: Support declining industries to protect jobs	37.87	31.666	.431	.637
■ Q5f: Gov. and economy: Red. working week for more jobs	37.71	34.531	.226	.669
■ Q6a: Government should spend money: Environment	38.33	34.922	.328	.656
■ Q6b: Government should spend money: Health	38.76	34.806	.345	.654
■ Q6c: Government should spend money: Law enforcement	38.04	34.856	.305	.658
■ Q6d: Government should spend money: Education	38.66	35.122	.305	.658
■ Q6e: Government should spend money: Defence	37.39	35.746	.210	.669
■ Q6f: Government should spend money: Retirement	38.56	34.101	.389	.648
■ Q6g: Government should spend money: Unempl. benefits	37.56	34.475	.306	.657
■ Q6h: Government should spend money: Culture and arts	37.78	35.236	.300	.659
■ Q7a: Gov. responsibility: Provide job for everyone	38.94	34.990	.268	.662
■ Q7b: Gov. responsibility: Control prices	38.60	35.019	.265	.662

After eliminating we get a better
score

Reliability Statistics

Cronbach's Alpha	N of Items
.704	15

Now Alpha could be increased if we take away Q5c

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Q5b: Gov. and economy: Financing projects for new jobs	36.42	32.748	.402	.678
Q5c: Gov. and economy: Less gov. reg. of business	36.13	35.952	.086	.717
Q5d: Gov. and economy: Support industry to develop new products	36.20	32.818	.373	.681
Q5e: Gov. and economy: Support declining industries to protect jobs	35.49	30.707	.456	.668
Q5f: Gov. and economy: Red. working week for more jobs	35.32	33.695	.237	.700
Q6a: Government should spend money: Environment	35.94	34.253	.325	.688
Q6b: Government should spend money: Health	36.37	34.074	.348	.685
Q6c: Government should spend money: Law enforcement	35.66	34.262	.294	.691
Q6d: Government should spend money: Education	36.28	34.317	.317	.689
Q6e: Government should spend money: Defence	35.00	35.095	.206	.701
Q6f: Government should spend money: Retirement	36.18	33.351	.395	.680
Q6g: Government should spend money: Unempl. benefits	35.17	33.541	.328	.687
Q6h: Government should spend money: Culture and arts	35.41	34.396	.315	.689
Q7a: Gov. responsibility: Provide job for everyone	36.55	34.037	.293	.691
Q7b: Gov. responsibility: Control prices	36.22	34.109	.285	.692

Alpha increases once more!

Reliability Statistics

Cronbach's Alpha	N of Items
.716	14

Now Alpha cannot be increased by removing an item, as it would be less than .716 if any were removed

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Q5b: Gov. and economy: Financing projects for new jobs	34.05	31.021	.367	.696
Q5d: Gov. and economy: Support industry to develop new products	33.82	31.303	.320	.702
Q5e: Gov. and economy: Support declining industries to protect jobs	33.13	28.525	.471	.680
Q5f: Gov. and economy: Red. working week for more jobs	32.96	31.615	.234	.715
Q6a: Government should spend money: Environment	33.57	32.159	.318	.702
Q6b: Government should spend money: Health	34.00	31.877	.358	.698
Q6c: Government should spend money: Law enforcement	33.29	31.993	.307	.703
Q6d: Government should spend money: Education	33.90	32.337	.301	.704
Q6e: Government should spend money: Defence	32.64	32.919	.207	.714
Q6f: Government should spend money: Retirement	33.82	31.076	.415	.691
Q6g: Government should spend money: Unempl. benefits	32.81	31.101	.358	.697
Q6h: Government should spend money: Culture and arts	33.03	32.263	.314	.702
Q7a: Gov. responsibility: Provide job for everyone	34.19	31.638	.321	.701
Q7b: Gov. responsibility:				

One little problem....

- If we are comparing several groups, like men and women or Sweden and France, then we could compare the means and say that French score higher than Swedes or Women score higher than men
- Because I was lazy in making this presentation, I did not recode the questions 7a and 7b, but since they are on a scale of 1-4, while the others are on a scale of 1-5, I really should have transformed them by multiply the scores by 1.25, so they too would have the same scale.
- There would still be a problem, because even though they would all have the same maximum value, they would not have the same minimum.
- The best would be to rescale ALL the variables used, so that instead of 1-5 they would be 0, 2,3,4
- Then rescale the 1-4 scale so the scale would be 0, 1.33, 2.67, 4.0

The scale scores

- Once we made these transformations so that all questions have a scale of 0-4
- AND they all go in the same direction, so that 4 for EVERY question either means support for government intervention or opposition to government intervention
- THEN we can compare the average scores among groups
- There are 14 questions in our scale, if all questions are from 0-4, then the scale would be from 0-56

Making the Scale in SPSS: Go back to compute variable

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File Edit View Data Transform Analyze Graphs Utilities Add-ons Window Help

Compute Variable...
Count Values within Cases...
Recode into Same Variables...
Recode into Different Variables...
Automatic Recode...
Visual Binning...
Rank Cases...
Date and Time Wizard...
Create Time Series...
Replace Missing Values...
Random Number Generators...
Run Pending Transforms Ctrl+G

Name	Label	Values	Missing	Columns	Align	Measure
1 v1	Study Num	{4700, ZA Stud	None	6	Right	Nominal
2 version	ition of the d	{1.0, First GE	None	9	Right	Nominal
3 v2	spondent ID	None	None	10	Right	Scale
4 v3	untry/Sampl	{36.0, AU-Aust	None	7	Right	Scale
5 v3a	D code of co	{36, AU-Austra	None	5	Right	Scale
6 v4	: Obey laws	{1, Obey the la	8, 9	4	Right	Nominal
7 v5	ta: Public pr	{1, Definitely al	8, 9	4	Right	Nominal
8 v6	tb: Protest d	{1, Definitely al	8, 9	4	Right	Nominal
9 v7	tc: National	{1, Definitely al	8, 9	4	Right	Nominal
10 v8	ta: Revolutio	{1, Definitely al	8, 9	4	Right	Nominal
11 v9	Q3b: Revolutio	{1, Definitely al	8, 9	4	Right	Nominal
12 v10	Q4: Worse typ	{1, Convict inn	8, 9	5	Right	Nominal
13 v11	Q5a: Gov. and	{1, Strongly in	8, 9	5	Right	Nominal
14 v12	Q5b: Gov. and	{1, Strongly in	8, 9	5	Right	Nominal
15 v13	Q5c: Gov. and	{1, Strongly in	8, 9	5	Right	Nominal
16 v14	Q5d: Gov. and	{1, Strongly in	8, 9	5	Right	Nominal
17 v15	Q5e: Gov. and	{1, Strongly in	8, 9	5	Right	Nominal
18 v16	Q5f: Gov. and	{1, Strongly in	8, 9	5	Right	Nominal
19 v17	Q6a: Governm	{1, Spend muc	8, 9	5	Right	Nominal
20 v18	Q6b: Governm	{1, Spend muc	8, 9	5	Right	Nominal
21 v19	Q6c: Governm	{1, Spend muc	8, 9	5	Right	Nominal
22 v20	Q6d: Governm	{1, Spend muc	8, 9	5	Right	Nominal
23 v21	Q6e: Governm	{1, Spend muc	8, 9	5	Right	Nominal
24 v22	Q6f: Governme	{1, Spend muc	8, 9	5	Right	Nominal
25 v23	Q6g: Governm	{1, Spend muc	8 - 2E+307, 0	5	Right	Nominal
26 v24	Q6h: Governm	{1, Spend muc	8, 9	5	Right	Nominal
27 v25	Q7a: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
28 v26	Q7b: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
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30 v28	Q7d: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
31 v29	Q7e: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
32 v30	Q7f: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
33 v31	Q7g: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
34 v32	Q7h: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
35 v33	Q7i: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
36 v34	Q7j: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
37 v35	Q8a: Gov. suc	{1, Very succe	8, 9	5	Right	Nominal
38 v36	Q8b: Gov. suc	{1, Very succe	8, 9	5	Right	Nominal
39 v37	Q8c: Gov. suc	{1, Very succe	8, 9	5	Right	Nominal

Make a new variable by adding the items together than comprise the Alpha score (that is minus Q5a and Q5c)

The screenshot shows the SPSS Data Editor interface with a list of variables and a 'Compute Variable' dialog box open. The variable list includes:

Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measure
pt_size	Numeric	2	0	Size of commu	{0, NAP, other	0	9	Right	Nominal
ru_size	Numeric	2	0	Size of commu	{0, NAP, other	0	9	Right	Nominal
se_size	Numeric	2	0	Size of commu	{0, NAP, other	0	9	Right	Nominal
si_size	Numeric	2	0	Size of commu	{0, NAP, other	0, 99	9	Right	Nominal
tw_size	Numeric	2	0	Size of commu	{0, NAP, other	0, 99	9	Right	Nominal
us_size	Numeric	2	0	Size of commu	{0, NAP, other	0	9	Right	Nominal
uy_size	Numeric	2	0	Size of commu	{0, NAP, other	0	9	Right	Nominal
ve_size	Numeric	2	0	Size of commu	{0, NAP, other	0	9	Right	Nominal
za_size	Numeric	2	0	Size of commu	{0, NAP, other	0	9	Right	Nominal
urbrural	Numeric	1	0	Typ					
ethnic	Numeric	4	1	Fa					
mode	Numeric	2	0	Ad					
weight	Numeric	11	8	W					
LESSREG	Numeric	8	2						
Czech	Numeric	8	2						
filter_\$	Numeric	1	0	Cz					

The 'Compute Variable' dialog box is open, showing the following details:

- Target Variable: GOVREG
- Numeric Expression: $v12 + v14 + v15 + v16 + v17 + v18 + v19 + v20 + v21 + v22 + v23 + v24 + v25 + v26$
- Function group: All
- Buttons: OK, Paste, Reset, Cancel, Help

Your alpha assignment

- Choose the variables that you will want to include in your scale.
- Make sure that you have recoded variables so that each question has the same scale (like 0-4)
- Make sure that each question is also scaled in the same direction. You should have already done this during previous computer labs.
- Run the alpha analysis
- Eliminate variables if you can improve the score
- Create a scale
- Compare the means for two groups, like for Czechs and Swedes or for men and women. You can do this by making a filter for each group (like Czech and Swedes).
- Then apply the filter for one group (Czech) and go to ANALYZE->DESCRIPTIVE STATISTICS -> DESCRIPTIVES

Like this....

*issp2006steve.sav [DataSet1] - SPSS Data Editor

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Reports

- Descriptive Statistics
 - Frequencies...
 - Descriptives...
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- Classify
- Data Reduction
- Scale
- Nonparametric Tests
- Time Series
- Survival
- Multiple Response
- Missing Value Analysis...
- Complex Samples
- Quality Control
- ROC Curve...

	Name	Type	Values	Missing	Columns	Align	Measure
279	pt_size	Numeric					
280	ru_size	Numeric					
281	se_size	Numeric					
282	si_size	Numeric					
283	tw_size	Numeric					
284	us_size	Numeric					
285	uy_size	Numeric					
286	ve_size	Numeric					
287	za_size	Numeric					
288	urbrural	Numeric					
289	ethnic	Numeric					
290	mode	Numeric					
291	weight	Numeric					
292	LESSREG	Numeric					
293	Czech	Numeric					
294	filter_\$	Numeric					
295	GOVREG	Numeric					
296							
297							
298							
299							
300							
301							
302							
303							
304							
305							
306							
307							
308							
309							
310							
311							
312							
313							
314							
315							

Click on OK

*issp2006steve.sav [DataSet1] - SPSS Data Editor

File Edit View Data Transform Analyze Graphs Utilities Add-ons Window Help

	Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measure
279	pt_size	Numeric	2	0	Size of commu...	{0, NAP, other...	9		Right	Nominal
280	ru_size	Numeric	2	0	Size...					Nominal
281	se_size	Numeric	2	0	Size...					Nominal
282	si_size	Numeric	2	0	Size...					Nominal
283	tw_size	Numeric	2	0	Size...					Nominal
284	us_size	Numeric	2	0	Size...					Nominal
285	uy_size	Numeric	2	0	Size...					Nominal
286	ve_size	Numeric	2	0	Size...					Nominal
287	za_size	Numeric	2	0	Size...					Nominal
288	urb_rural	Numeric	1	0	Type...					Nominal
289	ethnic	Numeric	4	1	Fan...					Nominal
290	mode	Numeric	2	0	Adm...					Nominal
291	weight	Numeric	11	8	Weighting fact...	{1.00000000,	None	13	Right	Scale
292	LESSREG	Numeric	8	2		{1.00, strongly	None	10	Right	Scale
293	Czech	Numeric	8	2		None	None	10	Right	Scale
294	filter_\$	Numeric	1	0	Czech = 1 (FIL	{0, Not Selecte	None	10	Right	Scale
295	GOVREG	Numeric	8	2		None	None	10	Right	Scale
296										
297										
298										
299										
300										
301										
302										
303										
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305										
306										
307										
308										
309										
310										
311										
312										
313										
314										
315										
316										

Descriptives

Variable(s): GOVREG

Save standardized values as variables

OK Paste Reset Cancel Help Options...

You can see the average score now
(the mean)

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
GOVREG	993	19.00	63.00	36.0806	5.98280
Valid N (listwise)	993				

After checking the alpha scale you
can run multiple regressions on it

Factor Analysis

issp2006steve.sav [DataSet1] - SPSS Data Editor

File Edit View Data Transform Analyze Graphs Utilities Add-ons Window Help

Reports
Descriptive Statistics
Tables

Compare Means
General Linear Model
Generalized Linear Models
Mixed Models
Correlate
Regression
Loglinear
Classify
Data Reduction
Scale
Nonparametric Tests
Time Series
Survival
Multiple Response
Missing Value Analysis...
Complex Samples
Quality Control
ROC Curve...

Factor...

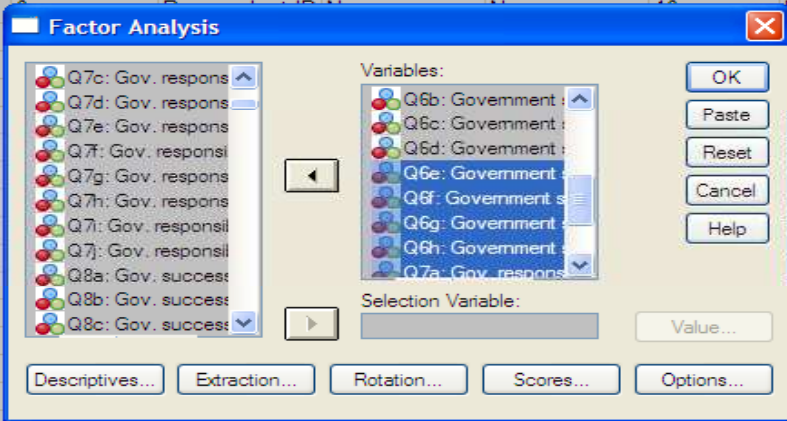
Correspondence Analysis...
Optimal Scaling...

	Name	Type	Label	Values	Missing	Columns	Align	Measure
1	v1	Numeric	ZA Study Num	{4700, ZA Stud	None	6	Right	Nominal
2	version	Numeric	Edition of the d	{1.0, First GE	None	9	Right	Nominal
3	v2	Numeric	Respondent ID	None	None	10	Right	Scale
4	v3	Numeric	Country/Sampl	{36.0, AU-Aust	None	7	Right	Scale
5	v3a	Numeric	ISO code of co	{36, AU-Austra	None	5	Right	Scale
6	v4	Numeric	Q1: Obey laws	{1, Obey the la	8, 9	4	Right	Nominal
7	v5	Numeric	Q2a: Public pr	{1, Definitely al	8, 9	4	Right	Nominal
8	v6	Numeric			8, 9	4	Right	Nominal
9	v7	Numeric			8, 9	4	Right	Nominal
10	v8	Numeric			8, 9	4	Right	Nominal
11	v9	Numeric			8, 9	4	Right	Nominal
12	v10	Numeric	Q3b: Revolutio	{1, Definitely al	8, 9	4	Right	Nominal
13	v11	Numeric	Q4: Worse typ	{1, Convict inn	8, 9	5	Right	Nominal
14	v12	Numeric	Q5a: Gov. and	{1, Strongly in	8, 9	5	Right	Nominal
15	v13	Numeric	Q5b: Gov. and	{1, Strongly in	8, 9	5	Right	Nominal
16	v14	Numeric	Q5c: Gov. and	{1, Strongly in	8, 9	5	Right	Nominal
17	v15	Numeric	Q5d: Gov. and	{1, Strongly in	8, 9	5	Right	Nominal
18	v16	Numeric	Q5e: Gov. and	{1, Strongly in	8, 9	5	Right	Nominal
19	v17	Numeric	Q5f: Gov. and	{1, Strongly in	8, 9	5	Right	Nominal
20	v18	Numeric	Q6a: Governm	{1, Spend muc	8, 9	5	Right	Nominal
21	v19	Numeric	Q6b: Governm	{1, Spend muc	8, 9	5	Right	Nominal
22	v20	Numeric	Q6c: Governm	{1, Spend muc	8, 9	5	Right	Nominal
23	v21	Numeric	Q6d: Governm	{1, Spend muc	8, 9	5	Right	Nominal
24	v22	Numeric	Q6e: Governm	{1, Spend muc	8, 9	5	Right	Nominal
25	v23	Numeric	Q6f: Governme	{1, Spend muc	8, 9	5	Right	Nominal
26	v24	Numeric	Q6g: Governm	{1, Spend muc	8 - 2E+307, 0	5	Right	Nominal
27	v25	Numeric	Q6h: Governm	{1, Spend muc	8, 9	5	Right	Nominal
28	v26	Numeric	Q7a: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
29	v27	Numeric	Q7b: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
30	v28	Numeric	Q7c: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
31	v29	Numeric	Q7d: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
32	v30	Numeric	Q7e: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
33	v31	Numeric	Q7f: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
34	v32	Numeric	Q7g: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
35	v33	Numeric	Q7h: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
36	v34	Numeric	Q7i: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
37	v35	Numeric	Q7j: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
38	v36	Numeric	Q8a: Gov. suc	{1, Very succe	8, 9	5	Right	Nominal
39	v37	Numeric	Q8b: Gov. suc	{1, Very succe	8, 9	5	Right	Nominal
40	v38	Numeric	Q8c: Gov. suc	{1, Very succe	8, 9	5	Right	Nominal
41	v39	Numeric	Q8d: Gov. suc	{1, Very succe	8, 9	5	Right	Nominal

Choose the same variables that you chose for the first Cronbach Alpha calculation

issp2006steve.sav [DataSet1] - SPSS Data Editor

File Edit View Data Transform Analyze Graphs Utilities Add-ons Window Help



The Factor Analysis dialog box is open, showing the following configuration:

- Variables:** Q7c: Gov. respons, Q7d: Gov. respons, Q7e: Gov. respons, Q7f: Gov. respons, Q7g: Gov. respons, Q7h: Gov. respons, Q7i: Gov. respons, Q7j: Gov. respons, Q8a: Gov. success, Q8b: Gov. success, Q8c: Gov. success, Q6a: Government, Q6b: Government, Q6c: Government, Q6d: Government, Q6e: Government, Q6f: Government, Q6g: Government, Q6h: Government, Q7a: Gov. respons, Q7b: Gov. respons, Q7c: Gov. respons, Q7d: Gov. respons, Q7e: Gov. respons, Q7f: Gov. respons, Q7g: Gov. respons, Q7h: Gov. respons, Q7i: Gov. respons, Q7j: Gov. respons, Q8a: Gov. success, Q8b: Gov. success, Q8c: Gov. success.
- Selection Variable:** (Empty)
- Buttons:** Descriptives..., Extraction..., Rotation..., Scores..., Options...

	Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measure
1	v1	Numeric	4	0	ZA Study Num	{4700, ZA Stud	None	6	Right	Nominal
2	version	Numeric	3	1	Edition of the d	{1.0, First GE	None	9	Right	Nominal
3	v2	Numeric	8						Right	Scale
4	v3	Numeric	5						Right	Scale
5	v3a	Numeric	3						Right	Scale
6	v4	Numeric	1						Right	Nominal
7	v5	Numeric	1						Right	Nominal
8	v6	Numeric	1						Right	Nominal
9	v7	Numeric	1						Right	Nominal
10	v8	Numeric	1						Right	Nominal
11	v9	Numeric	1						Right	Nominal
12	v10	Numeric	1						Right	Nominal
13	v11	Numeric	1						Right	Nominal
14	v12	Numeric	1						Right	Nominal
15	v13	Numeric	1						Right	Nominal
16	v14	Numeric	1						Right	Nominal
17	v15	Numeric	1						Right	Nominal
18	v16	Numeric	1						Right	Nominal
19	v17	Numeric	1	0	Q5: Gov. and	{1, Strongly in	8, 9	5	Right	Nominal
20	v18	Numeric	2	0	Q6a: Governm	{1, Spend muc	8, 9	5	Right	Nominal
21	v19	Numeric	1	0	Q6b: Governm	{1, Spend muc	8, 9	5	Right	Nominal
22	v20	Numeric	1	0	Q6c: Governm	{1, Spend muc	8, 9	5	Right	Nominal
23	v21	Numeric	1	0	Q6d: Governm	{1, Spend muc	8, 9	5	Right	Nominal
24	v22	Numeric	1	0	Q6e: Governm	{1, Spend muc	8, 9	5	Right	Nominal
25	v23	Numeric	1	0	Q6f: Governme	{1, Spend muc	8, 9	5	Right	Nominal
26	v24	Numeric	1	0	Q6g: Governm	{1, Spend muc	8 - 2E+307, 0	5	Right	Nominal
27	v25	Numeric	1	0	Q6h: Governm	{1, Spend muc	8, 9	5	Right	Nominal
28	v26	Numeric	1	0	Q7a: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
29	v27	Numeric	1	0	Q7b: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
30	v28	Numeric	1	0	Q7c: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
31	v29	Numeric	1	0	Q7d: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
32	v30	Numeric	1	0	Q7e: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
33	v31	Numeric	1	0	Q7f: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
34	v32	Numeric	1	0	Q7g: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
35	v33	Numeric	1	0	Q7h: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
36	v34	Numeric	1	0	Q7i: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
37	v35	Numeric	1	0	Q7j: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
38	v36	Numeric	1	0	Q8a: Gov. suc	{1, Very succe	8, 9	5	Right	Nominal
					Q8b: Gov. suc	{1, Very succe	8, 9	5	Right	Nominal

Choose the following in DESCRIPTIVES

issp2006steve.sav [DataSet1] - SPSS Data Editor

File Edit View Data Transform Analyze Graphs Utilities Add-ons Window Help

The screenshot shows the SPSS Data Editor interface with a list of variables. Two dialog boxes are overlaid on the list:

- Factor Analysis:** Variables: Q7c: Gov. respons, Q7d: Gov. respons, Q7e: Gov. respons, Q7f: Gov. respons, Q7g: Gov. respons, Q7h: Gov. respons, Q7i: Gov. respons, Q7j: Gov. respons, Q8a: Gov. suc, Q8b: Gov. suc, Q8c: Gov. suc.
- Factor Analysis: Descriptives:**
 - Statistics:
 - Univariate descriptives
 - Initial solution
 - Correlation Matrix:
 - Coefficients
 - Inverse
 - Significance levels
 - Reproduced
 - Determinant
 - Anti-image
 - KMO and Bartlett's test of sphericity

Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measure
v1	Numeric	4	0	ZA Study Num	{4700, ZA Stud	None	6	Right	Nominal
version	Numeric	3	1	Edition of the d	{1.0, First GE	None	9	Right	Nominal
v2	Numeric	8					10	Right	Scale
v3	Numeric	5					10	Right	Scale
v3a	Numeric	3					10	Right	Scale
v4	Numeric	1					10	Right	Nominal
v5	Numeric	1					10	Right	Nominal
v6	Numeric	1					10	Right	Nominal
v7	Numeric	1					10	Right	Nominal
v8	Numeric	1					10	Right	Nominal
v9	Numeric	1					10	Right	Nominal
v10	Numeric	1					10	Right	Nominal
v11	Numeric	1					10	Right	Nominal
v12	Numeric	1					10	Right	Nominal
v13	Numeric	1					10	Right	Nominal
v14	Numeric	1					10	Right	Nominal
v15	Numeric	1					10	Right	Nominal
v16	Numeric	1					10	Right	Nominal
v17	Numeric	1	0				10	Right	Nominal
v18	Numeric	2	0				10	Right	Nominal
v19	Numeric	1	0				10	Right	Nominal
v20	Numeric	1	0	Q6c: Governm	{1, Spend muc	8, 9	5	Right	Nominal
v21	Numeric	1	0	Q6d: Governm	{1, Spend muc	8, 9	5	Right	Nominal
v22	Numeric	1	0	Q6e: Governm	{1, Spend muc	8, 9	5	Right	Nominal
v23	Numeric	1	0	Q6f: Governme	{1, Spend muc	8, 9	5	Right	Nominal
v24	Numeric	1	0	Q6g: Governm	{1, Spend muc	8 - 2E+307, 0	5	Right	Nominal
v25	Numeric	1	0	Q6h: Governm	{1, Spend muc	8, 9	5	Right	Nominal
v26	Numeric	1	0	Q7a: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
v27	Numeric	1	0	Q7b: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
v28	Numeric	1	0	Q7c: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
v29	Numeric	1	0	Q7d: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
v30	Numeric	1	0	Q7e: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
v31	Numeric	1	0	Q7f: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
v32	Numeric	1	0	Q7g: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
v33	Numeric	1	0	Q7h: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
v34	Numeric	1	0	Q7i: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
v35	Numeric	1	0	Q7j: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
v36	Numeric	1	0	Q8a: Gov. suc	{1, Very succe	8, 9	5	Right	Nominal
v37	Numeric	1	0	Q8b: Gov. suc	{1, Very succe	8, 9	5	Right	Nominal
v38	Numeric	1	0	Q8c: Gov. suc	{1, Very succe	8, 9	5	Right	Nominal
v39	Numeric	1	0	Q8d: Gov. suc	{1, Very succe	8, 9	5	Right	Nominal
v40	Numeric	1	0	Q8e: Gov. suc	{1, Very succe	8, 9	5	Right	Nominal
v41	Numeric	1	0	Q8f: Gov. succ	{1, Very succe	8, 9	5	Right	Nominal
v42	Numeric	1	0	Q9a: Gov. deta	{1, Definitely s	8, 9	5	Right	Nominal

Go to EXTRACTION and click on SCREE PLOT

issp2006steve.sav [DataSet1] - SPSS Data Editor

File Edit View Data Transform Analyze Graphs Utilities Add-ons Window Help

	Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measure
1	v1	Numeric	4	0	ZA Study Num	{4700, ZA Stud	None	6	Right	Nominal
2	version	Numeric	3	1	Edition of the d	{1.0, First GE	None	9	Right	Nominal
3	v2	Numeric	8					10	Right	Scale
4	v3	Numeric	5					11	Right	Scale
5	v3a	Numeric	3					12	Right	Scale
6	v4	Numeric	1					13	Right	Nominal
7	v5	Numeric	1					14	Right	Nominal
8	v6	Numeric	1					15	Right	Nominal
9	v7	Numeric	1					16	Right	Nominal
10	v8	Numeric	1					17	Right	Nominal
11	v9	Numeric	1					18	Right	Nominal
12	v10	Numeric	1					19	Right	Nominal
13	v11	Numeric	1					20	Right	Nominal
14	v12	Numeric	1					21	Right	Nominal
15	v13	Numeric	1					22	Right	Nominal
16	v14	Numeric	1					23	Right	Nominal
17	v15	Numeric	1					24	Right	Nominal
18	v16	Numeric	1					25	Right	Nominal
19	v17	Numeric	1	0	Q6a: Governm			5	Right	Nominal
20	v18	Numeric	2	0	Q6b: Governm			5	Right	Nominal
21	v19	Numeric	1	0	Q6c: Governm			5	Right	Nominal
22	v20	Numeric	1	0	Q6d: Governm			5	Right	Nominal
23	v21	Numeric	1	0	Q6e: Governm			5	Right	Nominal
24	v22	Numeric	1	0	Q6f: Governme			5	Right	Nominal
25	v23	Numeric	1	0	Q6g: Governm	{1, Spend muc 8 - 2E+307, 0		5	Right	Nominal
26	v24	Numeric	1	0	Q6h: Governm	{1, Spend muc 8, 9		5	Right	Nominal
27	v25	Numeric	1	0	Q7a: Gov. resp	{1, Definitely s 8, 9		5	Right	Nominal
28	v26	Numeric	1	0	Q7b: Gov. resp	{1, Definitely s 8, 9		5	Right	Nominal
29	v27	Numeric	1	0	Q7c: Gov. resp	{1, Definitely s 8, 9		5	Right	Nominal
30	v28	Numeric	1	0	Q7d: Gov. resp	{1, Definitely s 8, 9		5	Right	Nominal
31	v29	Numeric	1	0	Q7e: Gov. resp	{1, Definitely s 8, 9		5	Right	Nominal
32	v30	Numeric	1	0	Q7f: Gov. resp	{1, Definitely s 8, 9		5	Right	Nominal
33	v31	Numeric	1	0	Q7g: Gov. resp	{1, Definitely s 8, 9		5	Right	Nominal
34	v32	Numeric	1	0	Q7h: Gov. resp	{1, Definitely s 8, 9		5	Right	Nominal
35	v33	Numeric	1	0	Q7i: Gov. resp	{1, Definitely s 8, 9		5	Right	Nominal
36	v34	Numeric	1	0	Q7j: Gov. resp	{1, Definitely s 8, 9		5	Right	Nominal
37	v35	Numeric	1	0	Q8a: Gov. suc	{1, Very succe 8, 9		5	Right	Nominal

Factor Analysis

Variables:

- Q6b: Government
- Q6c: Government
- Q6d: Government
- Q6e: Government
- Q6f: Government
- Q6g: Government

Factor Analysis: Extraction

Method: **Principal components**

Analyze

- Correlation matrix
- Covariance matrix

Display

- Unrotated factor solution
- Scree plot

Extract

- Eigenvalues over: **1**
- Number of factors:

Maximum iterations for Convergence: **25**

Then for ROTATION choose VARIMAX

issp2006steve.sav [DataSet1] - SPSS Data Editor

File Edit View Data Transform Analyze Graphs Utilities Add-ons Window Help

	Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measure
1	v1	Numeric	4	0	ZA Study Num	{4700, ZA Stud	None	6	Right	Nominal
2	version	Numeric	3	1	Edition of the d	{1.0, First GE	None	9	Right	Nominal
3	v2	Numeric	8					10	Right	Scale
4	v3	Numeric	5					11	Right	Scale
5	v3a	Numeric	3					12	Right	Scale
6	v4	Numeric	1					13	Right	Nominal
7	v5	Numeric	1					14	Right	Nominal
8	v6	Numeric	1					15	Right	Nominal
9	v7	Numeric	1					16	Right	Nominal
10	v8	Numeric	1					17	Right	Nominal
11	v9	Numeric	1					18	Right	Nominal
12	v10	Numeric	1					19	Right	Nominal
13	v11	Numeric	1					20	Right	Nominal
14	v12	Numeric	1					21	Right	Nominal
15	v13	Numeric	1					22	Right	Nominal
16	v14	Numeric	1					23	Right	Nominal
17	v15	Numeric	1					24	Right	Nominal
18	v16	Numeric	1	0	Q5f: Gov. and	{1, Strongly in	0, 9	5	Right	Nominal
19	v17	Numeric	1	0	Q6a: Governm	{1, Spend muc	8, 9	5	Right	Nominal
20	v18	Numeric	2	0	Q6b: Governm	{1, Spend muc	8, 9	5	Right	Nominal
21	v19	Numeric	1	0	Q6c: Governm	{1, Spend muc	8, 9	5	Right	Nominal
22	v20	Numeric	1	0	Q6d: Governm	{1, Spend muc	8, 9	5	Right	Nominal
23	v21	Numeric	1	0	Q6e: Governm	{1, Spend muc	8, 9	5	Right	Nominal
24	v22	Numeric	1	0	Q6f: Governme	{1, Spend muc	8, 9	5	Right	Nominal
25	v23	Numeric	1	0	Q6g: Governm	{1, Spend muc	8 - 2E+307, 0	5	Right	Nominal
26	v24	Numeric	1	0	Q6h: Governm	{1, Spend muc	8, 9	5	Right	Nominal
27	v25	Numeric	1	0	Q7a: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
28	v26	Numeric	1	0	Q7b: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
29	v27	Numeric	1	0	Q7c: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
30	v28	Numeric	1	0	Q7d: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
31	v29	Numeric	1	0	Q7e: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
32	v30	Numeric	1	0	Q7f: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
33	v31	Numeric	1	0	Q7g: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
34	v32	Numeric	1	0	Q7h: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
35	v33	Numeric	1	0	Q7i: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
36	v34	Numeric	1	0	Q7j: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
37	v35	Numeric	1	0	Q8a: Gov. suc	{1, Very succe	8, 9	5	Right	Nominal
38	v36	Numeric	1	0	Q8b: Gov. suc	{1, Very succe	8, 9	5	Right	Nominal

Factor Analysis

Q7c: Gov. respons
Q7d: Gov. respons
Q7e: Gov. respons
Q7f: Gov. respons
Q7g: Gov. respons
Q7h: Gov. respons
Q7i: Gov. respons
Q7j: Gov. respons
Q8a: Gov. success
Q8b: Gov. success
Q8c: Gov. success

Factor Analysis: Rotation

Method

None Quartimax
 Varimax Equamax
 Direct Oblimin Promax

Delta: 0 Kappa: 4

Display

Rotated solution Loading plot(s)

Maximum Iterations for Convergence: 25

Descriptives... Extraction... Rotation... Scores... Options...

Go to OPTIONS and choose SORTED BY SIZE and under SUPPRESS ABOLUTE VALUES change it to .30

issp2006steve.sav [DataSet1] - SPSS Data Editor

File Edit View Data Transform Analyze Graphs Utilities Add-ons Window Help

	Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measure
1	v1	Numeric	4	0	ZA Study Num	{4700, ZA Stud	None	6	Right	Nominal
2	version	Numeric	3	1	Edition of the d	{1.0, First GE	None	9	Right	Nominal
3	v2	Numeric	8					10	Right	Scale
4	v3	Numeric	5					11	Right	Scale
5	v3a	Numeric	3					12	Right	Scale
6	v4	Numeric	1					13	Right	Nominal
7	v5	Numeric	1					14	Right	Nominal
8	v6	Numeric	1					15	Right	Nominal
9	v7	Numeric	1					16	Right	Nominal
10	v8	Numeric	1					17	Right	Nominal
11	v9	Numeric	1					18	Right	Nominal
12	v10	Numeric	1					19	Right	Nominal
13	v11	Numeric	1					20	Right	Nominal
14	v12	Numeric	1					21	Right	Nominal
15	v13	Numeric	1					22	Right	Nominal
16	v14	Numeric	1					23	Right	Nominal
17	v15	Numeric	1					24	Right	Nominal
18	v16	Numeric	1					25	Right	Nominal
19	v17	Numeric	1	0	Q6a:			26	Right	Nominal
20	v18	Numeric	2	0	Q6b:			27	Right	Nominal
21	v19	Numeric	1	0	Q6c:			28	Right	Nominal
22	v20	Numeric	1	0	Q6d:			29	Right	Nominal
23	v21	Numeric	1	0	Q6e:			30	Right	Nominal
24	v22	Numeric	1	0	Q6f: Governme	{1, Spend muc	0, 9	5	Right	Nominal
25	v23	Numeric	1	0	Q6g: Governm	{1, Spend muc	8 - 2E+307, 0	5	Right	Nominal
26	v24	Numeric	1	0	Q6h: Governm	{1, Spend muc	8, 9	5	Right	Nominal
27	v25	Numeric	1	0	Q7a: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
28	v26	Numeric	1	0	Q7b: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
29	v27	Numeric	1	0	Q7c: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
30	v28	Numeric	1	0	Q7d: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
31	v29	Numeric	1	0	Q7e: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
32	v30	Numeric	1	0	Q7f: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
33	v31	Numeric	1	0	Q7g: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
34	v32	Numeric	1	0	Q7h: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal
35	v33	Numeric	1	0	Q7i: Gov. resp	{1, Definitely s	8, 9	5	Right	Nominal

Factor Analysis

Variables:

- Q6b: Government
- Q6c: Government
- Q6d: Government
- Q6e: Government
- Q6f: Government s
- Q6g: Government
- Q6h: Government
- Q7a: Gov. respons

Factor Analysis: Options

Missing Values

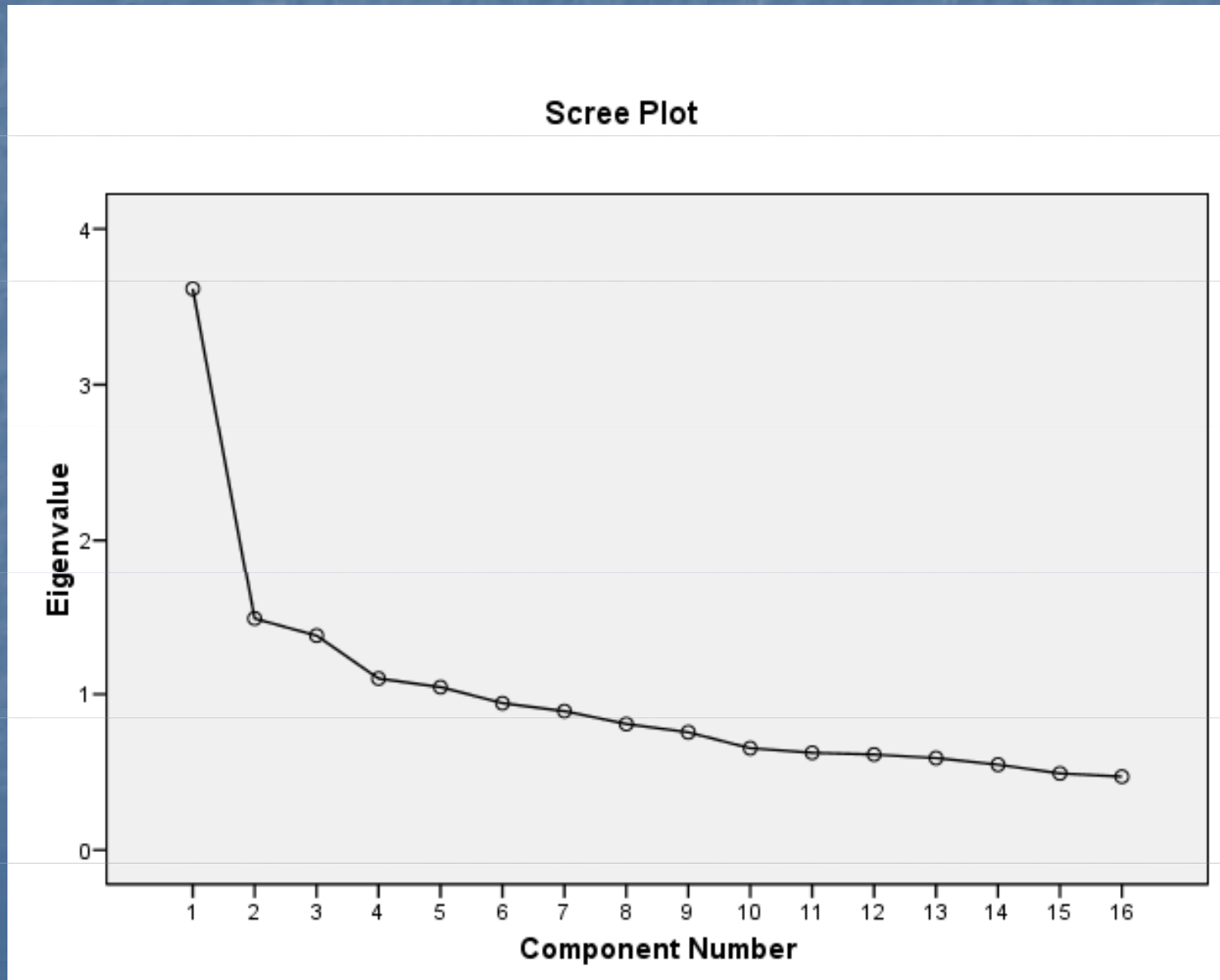
- Exclude cases listwise
- Exclude cases pairwise
- Replace with mean

Coefficient Display Format

- Sorted by size
- Suppress absolute values less than: .30

Click on OK and you get your first
result

First let's look at the scree plot



Analyzing the Scree plot

- 4 have values above 1
- But there seems to be a big dip after two components, which indicates that perhaps there are two dimensions

Let's Look at the explained variance: the first two components explain the most, although the next three do have Eigen values slightly more than 1. However, the third component does have a relatively high eigenvalue. Whether or not to keep the third factor depends partially on whether it makes theoretical sense.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.612	22.574	22.574	3.612	22.574	22.574	2.289	14.307	14.307
2	1.483	9.267	31.842	1.483	9.267	31.842	1.965	12.283	26.590
3	1.374	8.587	40.429	1.374	8.587	40.429	1.581	9.879	36.470
4	1.100	6.872	47.301	1.100	6.872	47.301	1.523	9.516	45.986
5	1.045	6.528	53.830	1.045	6.528	53.830	1.255	7.844	53.830
6	.943	5.892	59.721						
7	.892	5.574	65.296						
8	.808	5.052	70.348						
9	.756	4.722	75.070						
10	.653	4.083	79.153						
11	.624	3.898	83.050						
12	.613	3.829	86.879						
13	.590	3.686	90.565						
14	.547	3.422	93.987						
15	.492	3.072	97.059						
16	.471	2.941	100.000						

Extraction Method: Principal Component Analysis.

In the unrotated matrix many items are highly correlated to several factors

Component Matrix ^a					
	Component				
	1	2	3	4	5
Q6f: Government should spend money: Retirement	.645				
Q6g: Government should spend money: Unempl. benefits	.631				.311
Q6b: Government should spend money: Health	.610				
Q6d: Government should spend money: Education	.581	-.335			
Q5e: Gov. and economy: Support declining industries to protect jobs	.545	.442			
Q7a: Gov. responsibility: Provide job for everyone	.536	.389			
Q6h: Government should spend money: Culture and arts	.531			-.364	.388
Q5b: Gov. and economy: Financing projects for new jobs	.530	.318			
Q7b: Gov. responsibility: Control prices	.475	.351			
Q6c: Government should spend money: Law enforcement	.410	-.389		.352	
Q5f: Gov. and economy: Red. working week for more jobs	.393	.303			.351
Q5c: Gov. and economy: Less gov. reg. of business			.662		.336
Q5d: Gov. and economy: Support industry to develop new products	.353		.524		-.359
Q5a: Gov. and economy: Cuts in gov. spending			.510		.410
Q6a: Government should spend money: Environment	.386	-.404		-.533	
Q6e: Government should spend money: Defence	.344	-.307		.465	

Extraction Method: Principal Component Analysis.
^a. 5 components extracted.

But in the rotated matrix there are only a few overlaps

Rotated Component Matrix ^a					
	Component				
	1	2	3	4	5
Q7a: Gov. responsibility: Provide job for everyone	.714				
Q6g: Government should spend money: Unempl. benefits	.608		.326		
Q7b: Gov. responsibility: Control prices	.589				
Q5e: Gov. and economy: Support declining industries to protect jobs	.562			.423	
Q5f: Gov. and economy: Red. working week for more jobs	.558				
Q6c: Government should spend money: Law enforcement		.728			
Q6e: Government should spend money: Defence		.637			
Q6b: Government should spend money: Health		.569			
Q6f: Government should spend money: Retirement	.453	.541			
Q6d: Government should spend money: Education		.500	.395		
Q6a: Government should spend money: Environment			.759		
Q6h: Government should spend money: Culture and arts			.744		
Q5d: Gov. and economy: Support industry to develop new products				.785	
Q5b: Gov. and economy: Financing projects for new jobs	.314			.675	
Q5c: Gov. and economy: Less gov. reg. of business					.758
Q5a: Gov. and economy: Cuts in gov. spending					.723

Extraction Method: Principal Component Analysis.
 Rotation Method: Varimax with Kaiser Normalization.
 a. Rotation converged in 8 iterations.

Second Attempt

- I will remove the last 4 items, Q5d, Q5b, Q5c and Q5a, because they belong to components 4 and 5
- Please note: I am only making an example.
- If I were to do this seriously, I would first have to recode all the questions, so that they have the same scale (0-4 or 1-5) AND they must go in the same direction.
- It is very possible that these last 4 items really do fit in well, but they are coded in opposite directions – in some cases 5 denotes support for government intervention and in some cases it denotes opposition to intervention.

After removing these items, press OK

- Now there are only 3 factors.
- We see after rotation that some items are highly correlated with several components, so they should be eliminated.
- If Q6g and Q6e are eliminated, then we see that factor 3 makes sense: the culture and environment deal with quality of life rather than economic issues.
- Now we can eliminate as well Q6f because it is also highly correlated with two factors

Rotated Component Matrix^a

	Component		
	1	2	3
Q7a: Gov. responsibility: Provide job for everyone	.724		
Q5e: Gov. and economy: Support declining industries to protect jobs	.653		
Q7b: Gov. responsibility: Control prices	.644		
Q6g: Government should spend money: Unempl. benefits	.546		.347
Q5f: Gov. and economy: Red. working week for more jobs	.540		
Q6c: Government should spend money: Law enforcement		.740	
Q6b: Government should spend money: Health		.599	
Q6e: Government should spend money: Defence		.598	
Q6d: Government should spend money: Education		.527	.423
Q6f: Government should spend money: Retirement	.431	.520	
Q6a: Government should spend money: Environment			.770
Q6h: Government should spend money: Culture and arts			.749

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations.

New results: Q6b is highly related to two components, so should be eliminated

Rotated Component Matrix^a

	Component		
	1	2	3
Q7a: Gov. responsibility: Provide job for everyone	.730		
Q7b: Gov. responsibility: Control prices	.691		
Q5e: Gov. and economy: Support declining industries to protect jobs	.681		
Q5f: Gov. and economy: Red. working week for more jobs	.533		
Q6c: Government should spend money: Law enforcement		.805	
Q6e: Government should spend money: Defence		.720	
Q6b: Government should spend money: Health		.453	.347
Q6a: Government should spend money: Environment			.831
Q6h: Government should spend money: Culture and arts			.740

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 4 iterations.

Now the rotated matrix looks very nice!

Rotated Component Matrix^a

	Component		
	1	2	3
Q7a: Gov. responsibility: Provide job for everyone	.733		
Q7b: Gov. responsibility: Control prices	.697		
Q5e: Gov. and economy: Support declining industries to protect jobs	.686		
Q5f: Gov. and economy: Red. working week for more jobs	.535		
Q6a: Government should spend money: Environment		.831	
Q6h: Government should spend money: Culture and arts		.762	
Q6c: Government should spend money: Law enforcement			.790
Q6e: Government should spend money: Defence			.783

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 5 iterations.

Each factor explains a lot of the variance (at least 16%)

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.136	26.705	26.705	2.136	26.705	26.705	1.823	22.791	22.791
2	1.324	16.546	43.251	1.324	16.546	43.251	1.364	17.055	39.846
3	1.041	13.014	56.265	1.041	13.014	56.265	1.314	16.419	56.265
4	.905	11.316	67.581						
5	.763	9.537	77.118						
6	.675	8.439	85.558						
7	.595	7.437	92.995						
8	.560	7.005	100.000						

Extraction Method: Principal Component Analysis.

Now we can look at the test statistics

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.661
Bartlett's Test of Sphericity	Approx. Chi-Square	31305.627
	df	28
	Sig.	.000

- The Kaiser-Olkin measure is over .6, so it is acceptable
- And the Bartlett's Test is also significant
- So the model seems to be OK.

Now we must interpret these factors and give them names

- Factor 1 seems to do with the government intervening in the economy.
- Factor 2 seems to deal with government responsibility for the quality of life
- Factor 3 has to do with security.

Rotated Component Matrix^a

	Component		
	1	2	3
Q7a: Gov. responsibility: Provide job for everyone	.733		
Q7b: Gov. responsibility: Control prices	.697		
Q5e: Gov. and economy: Support declining industries to protect jobs	.686		
Q5f: Gov. and economy: Red. working week for more jobs	.535		
Q6a: Government should spend money: Environment		.831	
Q6h: Government should spend money: Culture and arts		.762	
Q6c: Government should spend money: Law enforcement			.790
Q6e: Government should spend money: Defence			.783

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 5 iterations.

Now there are two possibilities

- A: One can create three different scales by using the COMPUTE VARIABLE function as in creating the Cronbach Alpha scale
- Or one can let SPSS create a factor value for each factor.
- I favor the first method.
- To let SPSS create a factor value, go back to the function for factor analysis and click on SCORES...
- Then click on the save as variables box and press continue and run factor analysis one more time.

Creating factor scores

issp2006steve.sav [DataSet1] - SPSS Data Editor

File Edit View Data Transform Analyze Graphs Utilities Add-ons Window Help

	Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measure
1	v1	Numeric	4	0	ZA Study Num	{4700, ZA Stud	None	6	Right	Nominal
2	version	Numeric	2	1	Edition of the d	{1, 0, First GE	None	9	Right	Nominal
3	v2	Numeric	1	0			None	10	Right	Scale
4	v3	Numeric	1	0			None	7	Right	Scale
5	v3a	Numeric	1	0			None	5	Right	Scale
6	v4	Numeric	1	0			{1, 8, 9	4	Right	Nominal
7	v5	Numeric	1	0			{1, 8, 9	4	Right	Nominal
8	v6	Numeric	1	0			{1, 8, 9	4	Right	Nominal
9	v7	Numeric	1	0			{1, 8, 9	4	Right	Nominal
10	v8	Numeric	1	0			{1, 8, 9	4	Right	Nominal
11	v9	Numeric	1	0			{1, 8, 9	4	Right	Nominal
12	v10	Numeric	1	0			{1, 8, 9	4	Right	Nominal
13	v11	Numeric	1	0			{1, 8, 9	4	Right	Nominal
14	v12	Numeric	1	0			{1, 8, 9	4	Right	Nominal
15	v13	Numeric	1	0			{1, 8, 9	5	Right	Nominal
16	v14	Numeric	1	0			{1, 8, 9	5	Right	Nominal
17	v15	Numeric	1	0			{1, 8, 9	5	Right	Nominal
18	v16	Numeric	1	0			{1, 8, 9	5	Right	Nominal
19	v17	Numeric	1	0			{1, 8, 9	5	Right	Nominal
20	v18	Numeric	2	0			{1, 8, 9	5	Right	Nominal
21	v19	Numeric	1	0			{1, 8, 9	5	Right	Nominal
22	v20	Numeric	1	0			{1, 8, 9	5	Right	Nominal
23	v21	Numeric	1	0			{1, 8, 9	5	Right	Nominal
24	v22	Numeric	1	0			{1, 8, 9	5	Right	Nominal
25	v23	Numeric	1	0			{1, 8, 9	5	Right	Nominal
26	v24	Numeric	1	0			{1, 8, 9	5	Right	Nominal
27	v25	Numeric	1	0			{1, 8, 9	5	Right	Nominal
28	v26	Numeric	1	0			{1, 8, 9	5	Right	Nominal
29	v27	Numeric	1	0			{1, 8, 9	5	Right	Nominal
30	v28	Numeric	1	0			{1, 8, 9	5	Right	Nominal
31	v29	Numeric	1	0			{1, 8, 9	5	Right	Nominal
32	v30	Numeric	1	0			{1, 8, 9	5	Right	Nominal
33	v31	Numeric	1	0			{1, 8, 9	5	Right	Nominal
34	v32	Numeric	1	0			{1, 8, 9	5	Right	Nominal
35	v33	Numeric	1	0			{1, 8, 9	5	Right	Nominal
36	v34	Numeric	1	0			{1, 8, 9	5	Right	Nominal
37	v35	Numeric	1	0			{1, 8, 9	5	Right	Nominal
38	v36	Numeric	1	0			{1, 8, 9	5	Right	Nominal

Factor Analysis

Variables:

- Q5e: Gov. and eco
- Q5f: Gov. and eco
- Q6a: Governm
- Q6c: Governm
- Q6e: Governm
- Q6g: Governm
- Q6h: Governm
- Q7a: Gov. resp
- Q7b: Gov. resp
- Q7c: Gov. resp
- Q7d: Gov. resp
- Q7e: Gov. resp
- Q7f: Gov. resp
- Q7g: Gov. resp
- Q7h: Gov. resp
- Q7i: Gov. resp
- Q7j: Gov. resp
- Q8a: Gov. suc
- Q8b: Gov. suc

Selection Variable:

OK Paste Reset Cancel Help

Descriptives... Extraction... Rotation... Scores...

Factor Analysis: Factor Scores

Save as variables

Method

- Regression
- Bartlett
- Anderson-Rubin

Display factor score coefficient matrix

Continue Cancel Help

Finally you can conduct multivariate regressions on each factor

- Try to create a model for each 3 factor.
- Choose again some independent variables that you think might be able to explain attitudes toward these factors, such as AGE, SEX, EDUCATION, INCOME, etc.
- Examine whether the same independent variables are significant for each factor.
- If some variables are more important for explaining one factor than another, think about why this could be the case.

THEORY!

- Please remember that I have presented everything inductively now to show you how statistics work.
- You should actually begin with theory.
- From the beginning you should have hypotheses based on previous studies as to which variables should be able to predict your outcomes.
- Also you should make use of theory to choose what questions you will put in your original factor analysis. You should have a hypothesis about how many factors there will be.
- Even if your hypothesis is proven wrong, you should think theoretically about how to name the factors that you end up with.