

## Assignment 5

### Well-being and desired child qualities across the world

#### Introduction

The *Human Values Survey* is a world-wide survey in which large samples from many countries in the world answer the same questions, providing a large database for cross-cultural research (if you are interested, here is the link to the project's website, from which you can download all data too:

<http://www.worldvaluessurvey.org> ).

In this assignment we will use a small part of the Human Values Survey, about two subjects: *well-being* and *desired child qualities*. This time the units of analysis are not persons, but 39 *countries*, and our variables mostly refer to percentages of persons in a country that did choose some answer.



The data are in the file “*world.sav*”. Here are the names and descriptions of the variables.

#### *General*

- Country Name of the country
- Gnp Gross national product per capita (an indicator of a country's wealth, although not about how fairly it is distributed)

#### *Well-being*

- Genhappy Feeling of happiness? (% “very happy”)
- Gnhealth State of health (subjective: % “very good” or “good”)
- Lifesat How satisfied with your life as a whole? (% scoring 7-10 on a ten-point scale)
- Excited During past few weeks ever felt particularly excited or interested in something? (% “yes”)
- Restless During past few weeks ever felt so restless you could not sit in a chair? (% “yes”)
- Proud During past few weeks ever felt proud because someone complimented you? (% “yes”)
- Lonely During past few weeks ever felt very lonely or remote from other people? (% “yes”)
- Pleased During past few weeks ever felt pleased about having accomplished something? (% “yes”)
- Bored During past few weeks ever felt bored? (% “yes”)
- Topworld During past few weeks ever felt on top of the world / felt that life is wonderful? (% “yes”)

- Depres                      During past few weeks ever felt depressed or very unhappy? (% “yes”)
- Yourway                    During past few weeks ever felt that things were going your way? (% “yes”)
- Upset                        During past few weeks ever felt upset because somebody criticized you? (% “yes”)

#### *Desired child qualities*

“Here is a list of qualities which children can be encouraged to learn at home. Which if any, do you consider to be especially important?” (*choose no more than five*)

- Manners                    Good manners (% chosen)
- Independ                   Independence (% chosen)
- Hardwork                   Hard work (% chosen)
- Responsi                   Feeling of responsibility (% chosen)
- Imaginat                   Imagination (% chosen)
- Tolerant                    Tolerance and respect for other people (% chosen)
- Thrift                        Thrift saving money and things (% chosen)
- Persever                    Determination perseverance (% chosen)
- Religion                    Religious faith (% chosen)
- Unselfis                    Unselfishness (% chosen)
- Obedient                    Obedience (% chosen)

## **The task**

### *Principal components analysis (PCA)*

1. Perform a PCA on the 13 variables related to *well-being* (from “genhappy” to “upset”).
  - a. How suitable for factor analysis are the data, and how adequate is sample size?
  - b. How many components should you choose according to eigenvalues-larger-than-one criterion? How many components should you choose according to the point-of-inflexion criterion? Explain why.
  - c. Ignore these criteria and decide on the basis of *ease of interpretation* how many components to use. To do that, try to interpret all four solutions with VARIMAX-rotation. Give a brief description and interpretation of all scales. *Hint: start with the one component solution.*
  - d. Which solution do you think is the best? Explain. Give a more detailed description and interpretation, with relevant tables and figures, of the chosen solution.



2. Perform a PCA on the 11 desired *child qualities* variables and answer the same questions as above, with the exception that you may limit analysis and interpretation to the two-component solution (which is hard enough).
3. For each analysis above, save the *component scores* for the two-component solution (use the regression method). This allows you to do some interesting things.
  - a. Create two *scatterplots* (one for each solution) in which the component scores for the first component (X-axis) are plotted against the second component (Y-axis), labeled by country. Present these two plots in your report and describe briefly what in your opinion are the most interesting things in the plots.
  - b. Investigate with *Pearson correlations* the relationships between the well-being component scores and the desired child qualities component scores, and of both sets of component scores the correlations with the BNP (an important indicator of a country's wealth). Interpret your results.

### ***Reliability analysis and scale construction***

4. If we think that our PCA results reveal important dimensions on which countries can be compared, we might wish to make scales for each dimension. For reasons explained in the lecture, component scores are not most suitable for construction of scales that are to be used in other samples, so usually we prefer simpler, additive scales instead. As in assignment 3 use the two-component solutions.
  - a. Perform *four reliability analyses* (Cronbach's alpha), one for each of the four dimensions of the two PCA's. Think carefully about which items should be in which scales based on their component loadings.  
*NB* Don't forget that you sometimes have to recode some variables before computing a reliability coefficient or adding them up.
  - b. Are you satisfied with the obtained alpha's? If not, are there items that could be better left out? Which ones? Explain your answers. (NOTE: if you would leave out items, do **not** remove them from the scales to be computed below).
  - c. Make *additive scales* for each of the four components by adding up the values of all items in these components. Give for each scale mean and standard deviation.
  - d. Compute for each scale the *Pearson correlation* with the corresponding component score, and describe the results.



*Tip.* SPSS help and the book don't tell you whether the *component scores* apply to the rotated or unrotated solution. If you order rotation, you will get factor scores for the rotated solution. If you do not specify a rotation, you will get factor scores for the unrotated solution. Make your choice, and be explicit about it.

*Advice.* As always, don't forget the *Guidelines for writing reports*.

**Deadline for delivery.** Tuesday, December 08, 13.00 hrs., in green post box to the left of S&O office (2 A 27).