Course 7 Understanding and Modelling Measurement Error in Social Surveys

Exercises Friday

I) Problems of translations:

1) Examples from practice

a) What is this example showing?

Expression of Kissinger	Translation by Israeli
○ Suicidal ○ Impossible ○ Difficult to get ○ I will see what I can do	○ Difficult to obtain ○ Unlikely ○ Achievable ○ I got the concession a long time ago

b) In cross-national surveys, it is quite often that English is the language used as a source questionnaire: what can be the problems of preparing the whole questionnaire in English and starting traducing it only afterwards?

c) In the European Social Survey (ESS) round 5, the following question was asked:

> Based on what you have heard or your own experience, how successful do you think the police are at preventing crimes in [country] where violence is used or threatened? Choose your answer from this card, where 0 is extremely unsuccessful and 10 is extremely successful.

Extremely unsuccessful										**Extremely successful**
00	01	02	03	04	05	06	07	08	09	10

Can you see any problem in translating this question into some other languages you know?

2) How is the translation done in a big high-quality survey as the ESS?

a) Look in the ESS website for information about the translation procedure followed. Criticize this procedure (positive and negative points).

b) Now, the ESS is using the program SQP to help detecting problems occurring at the translation stage: can you imagine how?

II) [together] Testing measurement equivalence with Mplus and JRule for Mplus

1) Remind what configural, metric and scalar invariance refer to. Represent the classic factor model for testing measurement equivalence across 2 groups (with 3 indicators):
   - in a path diagram
   - using equations.

2) Use the dataset: "ESSround3-trust-day5-n.dat". The dataset is in a fixed format which 12 variables of format 2. The 12 variables are the following:

- "cntry": 2 letters that correspond to the country
- A8 A9 A10 B4 B5 B6 B7 B8 B9 B10: correspond to the questions with the same names in the ESS questionnaire of round 3 (main questionnaire).
- "cntrynum": number from 1 to 25 corresponding to the country. The numbers have the following meaning:

1=Austria, 2=Belgium, 3=Bulgaria, 4=Switzerland, 5=Cyprus, 6= Germany, 7=Denmark, 8=Estonia, 9=Spain, 10=Finland, 11=France, 12=Great Britain, 14=Ireland, 15=Latvia, 16=Netherlands, 17=Norway, 18=Poland, 19=Portugal, 20=Romania, 21=Russia, 22=Sweden, 23=Slovenia, 24=Slovakia, 25= Ukraine.
There are no missing values.

   a) Specify the Mplus input for a factor model with 1 factor (trust in institutions) and all possible indicators to test for configural equivalence of this factor across all countries present in the dataset.

   b) How many indicators did you find? How many observations are present in total? How many free parameters do we have? What is the country that contributes more to the chi-square? And the one that contributes less? Give the standardized loadings for Germany.

   c) Specify the Mplus input for metric equivalence (same variables). How many free parameters do we have? What is the country that contributes more to the chi-square? And the one that contributes less? Look at the path diagram for the Netherlands.

   d) Specify the model for scalar equivalence (same variables). How many free parameters do we have? Compare it with the number of free parameters in the metric invariance model. Explain how we get from one to the other. What is the country that contributes more to the chi-square? And the one that contributes less? What is the means of F1 in AT? Why?

3) Use the same dataset. Reduce the model to 3 indicators (B4 to B6).

   a) Specify the Mplus inputs for the configural, metric and scalar model with 3 indicators.

   b) Test for the different levels of measurement equivalence. Use JRule for Mplus (software that allows testing at the parameter level, and takes into account the MI, EPC and power of the test). Does configural invariance holds? And metric

invariance? And scalar invariance? What does that mean in terms of possibility to compare relationships across the 24 countries? And about the possibility of comparing means?

c) Correct the model (by freeing the necessary parameters in your Mplus input) till you get an acceptable fit. Conclude.

III) Working on your own research

1) Go back to the final form of the question you came up with for your topic of interest in the previous days. Try to translate your question in at least one other language you speak well enough.

2) If your language is available in SQP, use the program to code the question in its translated form. Is there any difference in quality between the source question and its translated form?

3) Choose one concept from your own research and a dataset where it is measured with several reflective indicators. Specify the Mplus inputs to test for configural, scalar and metric equivalence of your concept across groups (countries or regions or different kinds of respondents, etc, depending on your own research interest).

4) Test the different levels of equivalence using JRule for Mplus. What can you conclude?

5) Come back to the translated form of the question you proposed in 1). Translate it back from the language you used to English. Compare with the source question you had. Is the source exactly similar to the translation of the translation?