Testing for Measurement Invariance with Many Groups

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Chapter 1

Preface

We have witnessed a surge of cross-national surveys over the past few years. Large international surveys, like the European Social Survey or the World Values Survey, provide researchers with unique opportunities to test their theories and hypothesis in diverse populations around the world. However, this availability of data is only very seldomly accompanied by the realization that the assumption of comparability of the survey instruments should not be given but tested instead. Before attributing any relevant differences between populations to substantial theoretical reasons, methodological and measurement causes should be explicitly ruled out by testing for measurement invariance. This workshop will introduce participants to the basics of measurement invariance testing with many groups. We will start by explaining what is measurement invariance and the major causes for measurement non-equivalence in surveys. Then we will proceed to discuss the three most common approaches to measurement invariance testing and end with a simple tutorial on how to test for measurement invariance with Multi-Group Confirmatory Factor Analysis (MG-CFA) using R statistical software.

> This workshop is designed to be introductory and therefore I invite the readers to follow the cited literature throughout this document and engage in further readings.

Content

- Introduction

- The basic principles of measurement invariance testing
- The main causes of non-invariance
- The importance of measurement invariance testing in cross-national surveys
- Three most common approaches to measurement invariance testing
- Tutorial on MG-CFA two groups measurement invariance testing procedure in R

- Q & A

Chapter 2

Introduction

Cross-national and cross-cultural comparative surveys have risen to be a very important resource in the Social Sciences. According to the Overview of Comparative Surveys Worldwide, more than 90 cross-national comparative surveys have been conducted around the world since 1948.

Even though surveys can aim to fulfill different purposes, generally they aim to estimate population means, totals or distributions or to estimate relationships between variables. A comparative survey will aim to compare these levels or relationships across groups (national or otherwise).

But regardless of how much we can try to prevent it, survey errors in one form or another will always occur. Survey errors might affect the estimates and their comparability.

This applies to different surveys but also to comparisons of sub-groups within the same survey.

Here we look at the comparability issue of survey data under the Total Survey Error perspective.

2.1 Comparative survey research

Here putting an example without correction

Might there be other not substantive explanations for these results?

And here the example after correction

Measurement error can affect both subjective and objective variables. For the latter, check **?**

But what causes errors?