Comparability of Single-variable Indicators: The Case of Corruption Items

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Corruption is our only hope. As long as there’s corruption, there’ll be merciful judges and even the innocent may get off.

Bertolt Brecht, *Mother Courage and Her Children*

Unfortunately our politicians are either incompetent or corrupt. Sometimes both on the same day.

Woody Allen, *Side Effects*
Studying Corruption through Surveys

• Corruption is the misuse of public power for private gains
• Corruption comes in different forms (petty, street level vs grand, political) = both harmful for the society
  
  (Nieuwbeerta, DeGeest and Siegers 2003; Mocan 2008; Rose and Peiffer 2015; Heath, Richards and de Graff 2016)

• Data collection in comparative corruption research = surveys dominate
  
  (Povitkina and Wysmułek 2017)

• Surveys measure both perceived and experienced corruption = growing amount of data since 2000
  
Studying Corruption through Surveys: Main Challenges

→ identifying reticent respondents

→ assessing the quality of corruption measures

→ estimating rare event determinants

→ facilitate the use of existent survey data of corruption

(Heath, Richards, and de Graaf 2016)
Studying Corruption through Surveys: Main Challenges

→ identifying reticent respondents
→ assessing the quality of corruption measures
→ estimating rare event determinants
→ facilitate the use of existent survey data of corruption
  (Heath, Richards, and de Graaf 2016)

+ assessing comparability of corruption items
+ examining country (mis)representation patterns in survey data on corruption
Data and Methods

• Based on: review of availability of corruption variables in cross-national surveys

• Search within: survey data archives + project web-sites
  • the GESIS Data Archive for the Social Sciences (https://dbk.gesis.org/dbksearch),
  • the UK Data Service (http://discover.ukdataservice.ac.uk), and
  • the ICPSR Inter-university Consortium for Political and Social Research (www.icpsr.umich.edu)

• Criteria: Surveys are cross-national; cover Europe in 1989-2017; with representative samples of the adult population; freely available through data archives or project web-sites and documented in English.
<table>
<thead>
<tr>
<th>Survey Name (Abbreviation)</th>
<th>Waves</th>
<th>Years</th>
<th>Corruption Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eurobarometer Corruption Themed (EB)</td>
<td>6</td>
<td>2005-2017</td>
<td>390</td>
</tr>
<tr>
<td>Global Corruption Barometer (GCB)</td>
<td>8 (1)</td>
<td>2003-2016*</td>
<td>349</td>
</tr>
<tr>
<td>Life in Transition Survey (LITS)</td>
<td>3</td>
<td>2006-2016</td>
<td>126</td>
</tr>
<tr>
<td>European Social Survey (ESS)</td>
<td>2</td>
<td>2004-2010</td>
<td>5</td>
</tr>
<tr>
<td>European Values Study (EVS)</td>
<td>3</td>
<td>1990-2008</td>
<td>4</td>
</tr>
<tr>
<td>International Social Survey Programme (ISSP)</td>
<td>9</td>
<td>1992-2017</td>
<td>22</td>
</tr>
<tr>
<td>World Values Survey (WVS)</td>
<td>5</td>
<td>1989-2013</td>
<td>7</td>
</tr>
<tr>
<td>Asia Europe Survey (ASES)</td>
<td>1</td>
<td>2000</td>
<td>3</td>
</tr>
<tr>
<td>Comparative Study of Electoral Systems (CSES)</td>
<td>1</td>
<td>2001</td>
<td>1</td>
</tr>
<tr>
<td>European Quality of Government Survey (QoG)</td>
<td>2</td>
<td>2010-2013</td>
<td>20</td>
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<tr>
<td>European Quality of Life Survey (EQLS)</td>
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<td>2016</td>
<td>5</td>
</tr>
<tr>
<td>General Eurobarometer (EB)</td>
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<td>1997-2016</td>
<td>18</td>
</tr>
<tr>
<td>International Social Justice Project (ISJP)</td>
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<td>1991-1996</td>
<td>4</td>
</tr>
<tr>
<td>New Europe Barometer (NEB)</td>
<td>5</td>
<td>1998-2004</td>
<td>7</td>
</tr>
<tr>
<td>Pew Global Attitudes Project (PEW)</td>
<td>6</td>
<td>2002-2016</td>
<td>11</td>
</tr>
<tr>
<td>Candidate Countries Eurobarometer (CCEB)</td>
<td>2</td>
<td>2003</td>
<td>5</td>
</tr>
<tr>
<td>Caucasus Barometer (CB)</td>
<td>7</td>
<td>2009-2017</td>
<td>17</td>
</tr>
<tr>
<td>Consolidation of Democracy in Central and Eastern Europe (CDCEE)</td>
<td>2</td>
<td>1990-2001</td>
<td>11</td>
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<tr>
<td>New Baltic Barometer (NBB)</td>
<td>6</td>
<td>1993-2004</td>
<td>14</td>
</tr>
<tr>
<td>Values and Political Change in Post-Communist Europe (VPCPCE)</td>
<td>1</td>
<td>1993</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>89</strong></td>
<td><strong>1989-2018</strong></td>
<td><strong>1129</strong></td>
</tr>
</tbody>
</table>
Growing amount of single-variable indicators on corruption

![Graph showing the trend of specialized and non-specialized surveys over years:]

- **Specialized surveys**
- **Non-Specialized surveys**

Yearly data points from 2002-2003 to 2016-2017 are indicated on the graph.
Comparability of single-variable indicators: exploring possibilities

• Focus: available data; assessment ex-post
• The most common method to assess equivalence: multigroup confirmatory factor analysis (Wolf et al. 2016; Cieciuch et al. 2016) → not applicable for single-variable indicators
• Alternative approach: assessing cross-national comparability by comparing regression models with and without a criterion variable
• ... where the criterion variables should be chosen so that they reflect a priori knowledge about their strong relation to the construct
Criterion Validity to Measure Comparability: Example

• Theoretical construct:

**Corruption** is an abuse of public power for private gains (Rose-Ackerman 1999)

• Operationalization:

**Corruption perception** is a subjective measure of corruption that captures the amount of corruption that respondents believes to exist in a specific sector or in a country.

• Cross-cultural survey measurement:

**Quality of Government Survey (2013; 25 European countries)**

*Corruption is prevalent in my area’s local public school system.*

(on an 11-point scale from 0 – strongly disagree to 10 – strongly agree)
Empirical Models: with and without [a set] of Criterion Variable(s)

Model 1: Social position effect

\[ \text{Corr\_edu}_i = a + \gamma_1 \times \text{female}_i + \gamma_2 \times \text{rural}_i + \gamma_3 \times \text{age}_i + \gamma_4 \times \text{tertiary}_i + e_i \]

Model 2: Adding a criterion variable for perception on corruption in schools as a set of variables of corruption perception in different institutions

\[ \text{Corr\_edu}_i = a + \gamma_1 \times \text{female}_i + \gamma_2 \times \text{rural}_i + \gamma_3 \times \text{age}_i + \gamma_4 \times \text{tertiary}_i + \text{corr\_health} + \text{corr\_police} + e_i \]
Empirical Models and Assumptions

Model 1: \( \text{Corr}_{\text{edu}}_i = a + \gamma_1 \cdot \text{female}_i + \gamma_2 \cdot \text{rural}_i + \gamma_3 \cdot \text{age}_i + \gamma_4 \cdot \text{tertiary}_i + e_i \)

Model 2: \( \text{Corr}_{\text{edu}}_i = a + \gamma_1 \cdot \text{female}_i + \gamma_2 \cdot \text{rural}_i + \gamma_3 \cdot \text{age}_i + \gamma_4 \cdot \text{tertiary}_i \)
\[
\quad + \text{corr}_\text{health} + \text{corr}_\text{police} + e_i
\]

Assumptions:

• societies are expected to have on average a similar relation between a construct and a criterion;

• difference between the explanatory power of the two models has an expected strength;

• deviation from this mean can be used to create a relative comparability coefficient between countries
How countries differ with respect to the explanatory power of criterion variables from the expected value, that is, the mean?

Source: Quality of Government 2013
Relative Impact of Criterion Variable(s) (RIC)

How countries differ with respect to the explanatory power of criterion variables from the expected value, that is, the mean?

Cross-national comparability coefficient = 1 – |RIC|

Source: Quality of Government 2013
Country representation in international surveys on corruption, 1989 - 2017
Concluding remarks

- Corruption research: no standard approach to measurement
- Comparability of corruption perception: assumed, yet rarely tested
- Use of criterion validity mean to establish the relative comparability coefficient in cross-national research: challenge in defining a criterion variable and setting the expectations
- Differences in representation between European countries: consequential for comparative research in general and for relying on criterion variables specifically
Thank you!
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Relative Comparability Coefficient (RCC)

$$RCC = 1 - |DIFF|$$

$$\text{Corr}_{\text{edu}}_i = a + \gamma_1 \cdot X_i + \gamma_2 \cdot RCC_i + e_i$$

Functions of the relative comparability coefficient:
- Indicative for the quality
- Included in the models as reliability coefficients / the survey quality predictor
Changes in Weighted Participation Rate of European countries in 1989-2017
Challenge: the values themselves and distances between them are not equal cross countries
Proposition: transform to the *distributional scale to establish a common metric*