CONVERSION OF VERBAL RESPONSE SCALES TO THE 0-10 CONTINUUM
Application of the Reference Distribution Method to time series from the Eurobarometer

Tineke de Jonge
tineke.dejonge@gmail.com
Erasmus University Rotterdam
EB-Symposium 10-07-2015

The Reference Distribution Method

- The problem: Variation in response scales;
  - leading question
  - number of response options
  - labeling
  - et cetera

Step 1: selection of discrete distribution to derive reference distribution from

Step 2: estimation of the best fitting beta distribution as reference

Step 3: determination of reference boundaries of response options based on cumulative distribution in reference year

Time series life satisfaction and happiness in The Netherlands

Application 1: The stability of boundaries

Reference distributions based on items European Social Survey 2008

Reference boundaries life satisfaction

Reference boundaries happiness

Horizontal deviation
Difference between reference boundary \( b_i \) and the position on the continuum where the cumulative frequency of the response option is equal to the value of the best fitting beta distribution

Vertical deviation
Difference between the cumulative frequency of the response option and the value of the best fitting cumulative beta distribution at the position of reference boundary \( b_i \)

Application 2: Robustness across demographic categories

Reference boundaries and estimated means

The differences between the estimated means based on the category-specific boundaries and those based on the boundaries for the entire population are very stable over time

Conclusion for trend analysis
It is not necessary to derive transition points for each demographic category separately

Statistics Netherlands
Split-half experiment in 2012:
5-point verbal scale, 11-point numerical scale
Reference distributions based on numerical scale
Reference boundaries for verbal scale: based on cumulative distributions per demographic category in 2012

Eurobarometer
Division B.6.5 in Northern Europe and Southern Europe
Reference distributions based on 50-point numerical scale used in wave 76.2 of 2011
Reference boundaries for 4-point verbal scale: based on cumulative distributions per demographic category in wave 76.3 of 2011

Can the reference boundaries derived for the general population be used for demographic categories to produce reliable extended time series to monitor differences in trends between these categories?

References