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Chapter 22: A Comparison of Different Approaches to Examining Whether Interviewer Effects Tend to Vary Across Different Subgroups of Respondents. Appendix 22A

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Appendix 22A

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Full book reference:

Olson, K., J. D. Smyth, J. Dykema, A. L. Holbrook, F. Kreuter, B. T. West. 2020. *Interviewer Effects from a Total Survey Error Perspective*. Boca Raton: CRC Press.

Appendix 22A

Table A22A.1 Substantive Questions about Climate Change and Energy (Module D) and Welfare Attitudes (Module E) Included in the Analysis

Variable	**Question**		Lowest value label	Highest value label
ENEFFAP	D1	How likely to buy most energy efficient home appliance	Not at all likely	Extremely likely
CFLSENR	D3	How confident you could use less energy than now	Not at all confident	Completely confident
CCRDPRS	D23	To what extent feel personal responsibility to reduce climate change	Not at all	A great deal
CCGDBD	D25	Climate change good or bad impact across world	Extremely bad	Extremely good
LKREDCC	D26	Imagine large numbers of people limit energy use, how likely reduce climate change	Not at all likely	Extremely likely
LKLMTEN	D27	How likely, large numbers of people limit energy use	Not at all likely	Extremely likely
GVSRDCC	D28	How likely, governments enough countries take action to reduce climate change	Not at all likely	Extremely likely
OWNRDCC	D29	How likely, limiting own energy use reduce climate change	Not at all likely	Extremely likely
UEMPLWK	E3	Of every 100 working age how many unemployed and looking for work	0-4	50 or more
SLVPENS	E4	Standard of living of pensioners	Extremely bad	Extremely good
SLVUEMP	E5	Standard of living of unemployed	Extremely bad	Extremely good
GVSLVOL	E6	Standard of living for the old, governments' responsibility	Not governments' responsibility at all	Entirely governments' responsibility

GVSLVUE	E7	Standard of living for the unemployed, governments' responsibility	Not governments' responsibility at all	Entirely governments' responsibility
GVCLDCR	E8	Child care services for working parents, governments' responsibility	Not governments' responsibility at all	Entirely governments' responsibility

Syntax

```
library(plyr)

library(nlme)


# Input: Data set containing substantive data in long format (total number of
respondents across countries * number of target variables), linked respondent
characteristics EDU (3-level factor), LANG_SAME (2-level factor), AGE, MALE
(2-level factor), DOMICILE (5-level factor), country identifier and
interviewer identifier INTNUM


# Basic model

# -----------

# For each country and target variable TARGET with standardized score VALUE


dlply(dat, c("TARGET", "Country"),

      function(df){


      # Fit linear model with random effect for interviewer INTNUM

      fit <- lme(VALUE ~ EDU + LANG_SAME + AGE + MALE + DOMICILE,

                  random = list(INTNUM = pdSymm(form = ~ 1)),

                  data = df, na.action = na.omit)


      # Extract variance components and compute IIC

      INTVAR <- as.numeric(VarCorr(fit)["(Intercept)", "Variance"])

      RESVAR <- as.numeric(VarCorr(fit)["Residual", "Variance"])

      ICC <- INTVAR/(INTVAR + RESVAR)
```

```
      })

# Procedure 1
# -----------
# For each country and target variable TARGET with standardized score VALUE,
and education group EDU

dlply(dat, c("TARGET", "Country", "EDU"),
      function(df){

      # Fit linear model with random effect for interviewer INTNUM
      # Note: Education variable EDU redundant and omitted
      fit <- lme(VALUE ~ LANG_SAME + AGE + MALE + DOMICILE,
                  random = list(INTNUM = pdSymm(form = ~ 1)),
                  data = df, na.action = na.omit)

      # Extract variance components and compute IIC
      INTVAR <- as.numeric(VarCorr(fit)["(Intercept)", "Variance"])
      RESVAR <- as.numeric(VarCorr(fit)["Residual", "Variance"])
      ICC <- INTVAR/(INTVAR + RESVAR)
      })

# Procedure 2
# -----------
# For each country and target variable TARGET with standardized score VALUE

dlply(dat, c("TARGET", "Country"),
      function(df){

      # Fit linear model with a random effect for interviewer INTNUM for each
education level EDU
      fit <- lme(VALUE ~ EDU + LANG_SAME + AGE + MALE + DOMICILE,
            random = list(INTNUM = pdDiag(form = ~ 0 + EDU)),
            weights = varIdent(form = ~ 1 | EDU),
```

```
            data = df, na.action = na.omit)


      # Extract variance components and compute IIC

      INTVAR <- as.numeric(VarCorr(fit)[c("EDU1", "EDU2", "EDU3"),
"Variance"])

      RESVAR <- as.numeric(VarCorr(fit)["Residual", "Variance"]) * c("1" = 1,
coef(fit$modelStruct$varStruct, unconstrained = FALSE))^2

      ICC <- INTVAR/(INTVAR + RESVAR)

      })
```