Practical

Practical

Dr. Daniel Caro (University of Oxford) and Dr. Christian Bokhove (University of Southampton)

Professional Development and Training Course: Analyzing International Large-Scale Assessment Data with R

April 2nd 2014, AERA, Philadelphia

Exercise 1

With PISA 2012 data

a) Calculate regression of math on ESCS (compare with Table II.2.1, p. 174)

b) Calculate average achievement in reading, math, and science by school type (compare with Table IV.4.7, p. 389)

c) Calculate percentages of students in schools with additional math lessons (replicate Table IV.3.29, 357)

Exercise 2

Reproduce Exhibit 2.19 in TIMSS 2011 User Guide, p. 29

The table reports math performance by the % of students who like learning math (BSDGSLM). Note: use the 'merge' function to combine table and mean results

Exercise 3

Think of a question that you would like to analyze with either PISA 2012 or TIMSS 2011 data, and find out the answer. You might find some inspiration in the international reports included on the memory-stick.

Note: we have only included data for some countries, but you could download data for the analysis. See slide for guidance.

Solution exercise 1a

```
# Import data
pisa <- pisa.select.merge(folder=filepath,
               student.file="INT_STU12_DEC03.sav",
               school.file= "INT_SCQ12_DEC03.sav",
               student = c("ESCS"),
               school = c("SCHLTYPE", "SC20Q01", "SC21Q05"))

# a) Calculate regression of math on ESCS (compare with Table II.2.1, p. 174)
pisa.reg.pv(pvlabel="MATH", x="ESCS", by = "IDCNTRYL", data=pisa)
```

Solution exercise 1b

```
# b) Calculate average achievement reading, math, and science by
# school type (compare with Table IV.4.7, p. 389,   PISA 2012 Report)
pisa.mean.pv(pvlabel="READ", by=c("IDCNTRYL", "SCHTYPE"), data=pisa)
pisa.mean.pv(pvlabel="MATH", by=c("IDCNTRYL", "SCHTYPE"), data=pisa)
pisa.mean.pv(pvlabel="SCIE", by=c("IDCNTRYL", "SCHTYPE"), data=pisa)
```

Solution exercise 1c

```
# c) Calculate percentages of students in schools that offer
# additional math classes (compare with Table IV.3.29, p. 357)
# Schools offers additional math lessons
pisa.table(variable="SC20Q01", by="IDCNTRYL", data=pisa)
# Purposes of additional math lessons
pisa.table(variable="SC21Q05", by="IDCNTRYL", data=pisa)
```

Solution exercise 2

```
x1 <- timss.table(variable="BSDGSLM", by="IDCNTRYL", data=timss8g)
x2 <- timss.mean.pv(pvlabel="BSMMAT", by= c("IDCNTRYL", "BSDGSLM"), data=timss8g)
x3 <- merge(x1, x2, by=c("IDCNTRYL" ,  "BSDGSLM"))
```