Package ‘intsvy’

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Description Provides tools for importing, merging, and analysing data from international assessment studies (TIMSS, PIRLS, PISA, ICILS, and PIAAC).
License GPL-2
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**Description**

Provides tools for importing, merging, and analysing data from international assessment studies (TIMSS, PIRLS, PISA, and PIAAC and others)

**Details**

- **Package:** intsvy
- **Type:** Package
- **Version:** 2.3
- **Date:** 2018-10-09
- **License:** GPL-2

intsvey allows users to work with international assessment data (e.g., TIMSS, PIRLS, PISA, ICILS, and PIAAC). The data is publicly available @ rms.iea-dpc.org and www.oecd.org/pisa in SPSS format. Data and merge functions print variable labels and the name of participating countries in international assessments as well as import data directly into R for the variables in student, parent, school, and teacher instruments and countries selected by the user. Analysis functions, including mean statistics, standard deviations, regression estimates, correlation coefficients, and frequency tables, calculate point estimates and standard errors that take into account the complex sample design (i.e., replicate weights) and rotated test forms (i.e., plausible achievement values).

**Author(s)**

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**References**

PISA, PIAAC, PIRLS, and TIMSS Technical Reports
Description

Each config file describes detailed study meta-data. Such meta data defined names of columns with weights, type of weighting, number of plausible values and other study parameters. Most of intsvy functions require such config objects.

Usage

pisa_conf

Format

A list with three components - input, variables and parameters.

intsvy.ben.pv

Performance international benchmarks and proficiency levels

Description

intsvy.ben.pv calculates the percentage of students performing at or above the cut-off points (scores) given by the user. The default are the benchmarks established by official reports.

Usage

intsvy.ben.pv(pvlabel, by, cutoff, data, export = FALSE, name = "output", folder = getwd(), config)

Arguments

pvlabel The label corresponding to the achievement variable, for example, "ASRREA", for overall reading performance.
cutoff The cut-off points for the assessment benchmarks (e.g., cutoff = c(357.77, 420.07, 482.38, 544.68, 606.99, 669.30)).
by The label for the grouping variable, usually the countries (i.e., by = "IDCNTRYL"), but could be any other categorical variable.
data An R object, normally a data frame, containing the data from PIRLS.
export A logical value. If TRUE, the output is exported to a file in comma-separated value format (.csv) that can be opened from LibreOffice or Excel.
name The name of the exported file.
folder The folder where the exported file is located.
cconfig Object with configuration of a given study. Should contain the slot 'prefixes' with prefixes of filenames with the student, home, school, and teacher data.
Value

pirls.ben.pv returns a data frame with the percentage of students at or above the benchmark and the corresponding standard error.

See Also

timss.ben.pv, pirls.ben.pv, pisa.ben.pv

Examples

```r
## Not run:
pisa.ben.pv(pvlabel="MATH", by="CNT", data=student2012)
intsy.ben.pv(pvlabel="MATH", by="CNT", data=student2012, config=pisa_conf)

piaac.ben.pv(pvlabel="LIT", by="CNTRYID", data=piaac)
intsy.ben.pv(pvlabel="LIT", by="CNTRYID", data=piaac, config=piaac_conf)

timss.ben.pv(pvlabel="ASMMAT", by="IDCNTRYYL", data=timss4)
intsy.ben.pv(pvlabel="ASMMAT", by="IDCNTRYYL", data=timss4, config=timss4_conf)

## End(Not run)
```

## intsvy.config

### Description

`intsy.config` set non standard parameters for `intsy` functions. It also allow to apply `intsy` functions to new studies that are similar to PIRLS, TIMSS, PISA, PIAAC, ICILS.

### Usage

```r
intsy.config(variables.pvlabelpref,
             variables.pvlabelsuff,
             variables.weight,
             variables.jackknifeZone,
             variables.jackknifeRep,
             parameters.cutoffs,
             parameters.cutoffs2,
             parameters.percentiles,
             parameters.weights,
             parameters.PVreps,
             parameters.varPv1,
             input.type,
             input.prefixes,
             input.student,
             input.student_colnames1,
             input.student_colnames2,
```
intsvy.config

input.student_pattern,
input.homeinput,
input.home_colnames,
input.school,
input.school_colnames,
input.teacher,
input.teacher_colnames,
input.student_ids,
input.school_ids,
input.type_part,
input.cnt_part, base.config = pirls_conf)

Arguments

parameters.weights
Weighting scheme. It may be "JK" for studies like PIRLS, ICLS, TIMSS, or
"BRR" for studies like PISA or "mixed_piaac" for studies with mixed design
like PIAAC.

parameters.cutoffs2, parameters.cutoffs
Cut offs for plausible values, either for benchmark or for logistic regression.

parameters.percentiles, parameters.pvreps
Other parameters for weighting schemes, like number of PVs.

parameters.varpv1
Logical value, TRUE if only 1 plausible value for within variance estimation.

variables.pvlabelpref, variables.pvlabelsuff, variables.weight, variables.jackknifeZone, variables.
Names of variables that are used for jack-knife replicates.

input.type, input.prefixes, input.student, input.student_colnames1, input.student_colnames2, input.
Parameters to correctly read data from files downloaded from iea.nl website.

base.config Base config structure, either pirls_conf, pisa_conf, piaac_conf, timss4_conf,
timss8_conf, icils_conf.

Value

intsvy.config returns new object with parameters. It is a list with three components - input, variables
and parameters.

Examples

## Not run:
icils_conf <- intsvy.config(input.student_pattern = "^PV[0-5]CIL$",
parameters.cutoffs2 = 550, intsvy:::pirls_conf)
icils_conf

## End(Not run)
Description

intsvy.log performs logistic regression analysis for an observed dependent variable (NOT for plausible values)

Usage

intsvy.log(y, x, by, data, export = FALSE, name = "output", folder = getwd(), config)

Arguments

y Label for dependent variable
x Data labels of independent variables (e.g., x = c("ASDHEHLA", "ITSEX")).
by The label for the grouping variable, usually the countries (i.e., by="IDCNTRYL"), but could be any other categorical variable.
data An R object, normally a data frame, containing the data from PIRLS.
extport A logical value. If TRUE, the output is exported to a file in comma-separated value format (.csv) that can be opened from LibreOffice or Excel.
name The name of the exported file.
folder The folder where the exported file is located.
config Object with configuration of a given study. Should contain the slot ‘prefixes’ with prefixes of filenames with the student, home, school, and teacher data.

Value

pirls.log prints a data frame with coefficients, standard errors, t-values, and odds ratios. Results are stored in a list object of class "intsvy.reg".

See Also

timss.log, pirls.log, pisa.log

Examples

## Not run:
# Table IV.5.14, p. 457 International Report 2012
pisa12$SKIP[!(pisa12$ST09Q01 == "None" & pisa12$ST115Q01 == "None")]<-1
pisa12$SKIP[pisa12$ST09Q01 == "None" & pisa12$ST115Q01 == "None"]<-.0
pisa12$LATE[!pisa12$ST08Q01=="None"]<-1
pisa12$LATE[pisa12$ST08Q01=="None"]<-0
intsvy.log.pv

Logistic regression analysis with plausible values

Description

intsvy.log.pv performs logistic regression with plausible values and replicate weights.

Usage

intsvy.log.pv(pvlabel, x, cutoff, by, data, export=FALSE, name= "output",
folder=getwd(), config)

Arguments

pvlabel The label corresponding to the achievement variable, for example, "ASRREA", for overall reading performance.

x Data labels of independent variables.

cutoff The cut-off point at which the dependent plausible values scores are dichotomised (1 is larger than the cut-off)

by The label for the categorical grouping variable (i.e., by="IDCNTRYL") or variables (e.g., x= c("IDCNTRYL", "ITSEX")).

data An R object, normally a data frame, containing the data from PIRLS.

export A logical value. If TRUE, the output is exported to a file in comma-separated value format (.csv) that can be opened from LibreOffice or Excel.

name The name of the exported file.

folder The folder where the exported file is located.

config Object with configuration of a given study. Should contain the slot ‘prefixes’ with prefixes of filenames with the student, home, school, and teacher data.
Value

`intsdy.mean` calculates the mean of an observed variable, not a variable with plausible values. It returns the mean and standard error of the observed variable. If the `by` argument is specified, results are provided for each level of the grouping variable. If `by` is not specified, results are provided for the entire sample.

*Description*

Calculates mean and standard error of observed variable (NOT one with plausible values).

*Usage*

```r
intsdy.mean(variable, by, data, export = FALSE, name = "output", folder = getwd(), config)
```

*Arguments*

- `variable`: The label corresponding to the observed variable, for example, "AGE_R" for age of respondent.
- `by`: The label for the grouping variable, usually the countries (i.e., `by="CNTRYID"`), but could be any other categorical variable.
- `data`: An R object, normally a data frame, containing the data from PIAAC.
- `export`: A logical value. If TRUE, the output is exported to a file in comma-separated value format (.csv) that can be opened from LibreOffice or Excel.
- `name`: The name of the exported file.
- `folder`: The folder where the exported file is located.
- `config`: Object with configuration of a given study. Should contain the slot ‘prefixes’ with prefixes of filenames with the student, home, school, and teacher data.

*Examples*

```r
## Not run:
intsdy.log.pv(pvlabel="MATH", cutoff= 606.99, x="ESCS", by="IDCNTRYL",
data=pisa, config=pisa_conf)
intsdy.log.pv(pvlabel="BSMMAT", cutoff= 550, x="ITSEX", by="IDCNTRYL",
data=timss8g, config=timss8_conf)
## End(Not run)
```
The function `intsvy.mean.pv` uses plausible values to calculate the mean achievement score and its standard error.

**Usage**

```r
intsvy.mean.pv(pvnames, by, data, export=FALSE, name="output", folder=getwd(), config)
```

**Arguments**

- `pvnames`: The names of columns corresponding to the achievement score, for example, `paste0("PV",1:5,"MATH")` for PISA.
- `by`: The label for the grouping variable, usually the countries (e.g., `by="CNTRYID"`), but could be any other categorical variable.
- `data`: An R object, normally a data frame.
- `export`: A logical value. If TRUE, the output is exported to a file in comma-separated value format (.csv) that can be opened from LibreOffice or Excel.
- `name`: The name of the exported file.
- `folder`: The folder where the exported file is located.
- `config`: Object with configuration of a given study. Should contain the slot `prefixes` with prefixes of filenames with the student, home, school, and teacher data.

**Value**

`intsvy.mean.pv` returns a data frame with means and standard errors.
See Also

pisa.mean.pv, timss.mean.pv, pirls.mean.pv

Examples

```r
## Not run:
intsvy.mean.pv(pvnames = paste0("ASRREA", 1:5), by = "IDCNTRYL",
data = pirls, config = pirls_conf)
intsvy.mean.pv(pvnames = paste0("PV", 1:5, "MATH"), by = "CNT",
data = student2012, config = pisa_conf)
intsvy.mean.pv(pvnames = paste0("BSMMAT", 1:5), by = "IDCNTRYL",
data = timss8g, config = timss8_conf)
intsvy.mean.pv(pvnames = paste0("PVNUM", 1:10), by = "CNTRYID",
data = piaac, config = piaac_conf)
## End(Not run)
```

### Description

Calculates percentiles for plausible values

#### Usage

```r
intsvy.per.pv(pvlabel, by, per, data, export = FALSE, name = "output",
folder = getwd(), config)
```

#### Arguments

- **pvlabel**: The label corresponding to the achievement variable, for example, "BSMMAT", for overall mathematics performance.
- **per**: User-defined percentiles (e.g., per = c(5, 10, 25, 75, 90, 95)).
- **by**: The label of the categorical grouping variable (e.g., by="IDCNTRYL") or variables (e.g., by=c("IDCNTRYL", "ITSEX")).
- **data**: An R object, normally a data frame, containing the data from intsvy studies.
- **export**: A logical value. If TRUE, the output is exported to a file in comma-separated value format (.csv) that can be opened from LibreOffice or Excel.
- **name**: The name of the exported file.
- **folder**: The folder where the exported file is located.
- **config**: Object with configuration of a given study. Should contain the slot ‘prefixes’ with prefixes of filenames with the student, home, school, and teacher data.
intsvy.reg

Regression analysis without plausible values

Description

intsvy.reg performs linear regression analysis (OLS) for an observed dependent variable (NOT for plausible values)

Usage

intsvy.reg(y, x, by, data, export = FALSE, name = "output", folder = getwd(), config)

Arguments

y  
Label for dependent variable.

x  
Data labels of independent variables.

by  
The label for the grouping variable, usually the countries (i.e., by="CNTRYID"), but could be any other categorical variable.

data  
An R object, normally a data frame, containing the data.

export  
A logical value. If TRUE, the output is exported to a file in comma-separated value format (.csv) that can be opened from LibreOffice or Excel.

name  
The name of the exported file.

Value

intsvy.per.pv returns a data frame with percentiles and associated standard errors. Default weights (e.g. "TOTWGT" in TIMSS) and percentiles are specified in the config parameter.

See Also

pisa.per.pv, pirls.per.pv, timss.per.pv

Examples

## Not run:

timss.per.pv(pvlabel="BSSMAT", per = c(5, 10, 25, 50, 75, 90, 95), by="IDCNTRYL", data=timss8)
intsvy.per.pv(pvlabel="BSSMAT", by="IDCNTRYL", data=timss8, config=timss8_conf)

pirls.per.pv(pvlabel="ASRREA", by="IDCNTRYL", data=pirls)
intsvy.per.pv(pvlabel="ASRREA", per = c(5, 10, 25, 50, 75, 90, 95), by="IDCNTRYL", data=pirls, config=pirls_conf)

pisa.per.pv(pvlabel="MATH", per=c(10, 25, 75, 90), by="CNT", data=student2012)
intsvy.per.pv(pvlabel="MATH", by="CNT", data=student2012, config=pisa_conf)

## End(Not run)
**intsyv.reg.pv**

The folder where the exported file is located.

**config**

Object with configuration of a given study. Should contain the slot ‘prefixes’ with prefixes of filenames with the student, home, school, and teacher data.

**Value**

`intsyv.reg` returns a data frame with coefficients, standard errors and t-values. If "by" is specified, results are reported in a list. If the "by" argument is set, then the returning object is of the class "intsyv.reg" with overloaded function plot().

**See Also**

`pisa.reg`, `pirls.reg`, `timss.reg`

**Examples**

```r
## Not run:
# install pbiecek/PIAAC package from github to have access to piaac data
piaac.reg(y="AGE_R", x="GENDER_R", by="CNTRYID", data=piaac)
## End(Not run)
```

---

**Description**

`intsyv.reg.pv` performs linear regression analysis (OLS) with plausible values and replicate weights.

**Usage**

```r
intsyv.reg.pv(x, pvlabel, by, 
data, std=FALSE, export = FALSE, name = "output", folder = getwd(), config)
```

**Arguments**

- **pvlabel**
  - The label corresponding to the achievement variable, for example, "BSMMAT", for overall math performance in TIMSS Grade 8.
- **x**
  - Data labels of independent variables.
- **by**
  - The label for the grouping variable, usually the countries (i.e., by="IDCNTRYL"), but could be any other categorical variable.
- **data**
  - An R object, normally a data frame, containing the data from TIMSS.
- **std**
  - A logical value. If TRUE standardised regression coefficients are calculated.
- **export**
  - A logical value. If TRUE, the output is exported to a file in comma-separated value format (.csv) that can be opened from LibreOffice or Excel.
- **name**
  - The name of the exported file.
intsvy.rho

folder
config

The folder where the exported file is located.
Object with configuration of a given study. Should contain the slot ‘prefixes’ with prefixes of filenames with the student, home, school, and teacher data.

Value

intsvy.reg.pv prints a data.frame with regression results (i.e., coefficients, standard errors, t-values, R-squared) and stores different regression output including residuals, replicate coefficients, variance within and between, and the regression data.frame in a list object of class "intsvy.reg".

See Also

piaac.reg.pv, pirls.reg.pv, pisa.reg.pv, timss.reg.pv

Examples

## Not run:
intsvy.reg.pv(pvlabel="MATH", x="ST04Q01", by = "IDCNTRYL", data=pisa, config=pisa_conf)
intsvy.reg.pv(pvlabel="LIT", x="GENDER_R", by = "CTRYID", data=piaac, config=piaac_conf)
intsvy.reg.pv(pvlabel="BSMMAT", by="IDCNTRYL", x="ITSEX", data=timss8g, config=timss8_conf)
intsvy.reg.pv(pvlabel="ASRREA", by="IDCNTRYL", x="ITSEX", data=pirls, config=pirls_conf)

## End(Not run)

intsvy.rho

Correlation matrix

Description

intsvy.rho produces a correlation matrix for observed variables (NOT for plausible values)

Usage

intsvy.rho(variables, by, data,
export = FALSE, name = "output", folder = getwd(), config)

Arguments

variables Data labels for the variables in the correlation matrix (e.g., variables=c("ASRREA01", "ASDAGE")
by The label for the grouping variable, usually the countries (i.e., by="IDCNTRYL"), but could be any other categorical variable.
data An R object, normally a data frame, containing the data from PIRLS.
export A logical value. If TRUE, the output is exported to a file in comma-separated value format (.csv) that can be opened from LibreOffice or Excel.
name The name of the exported file.
folder The folder where the exported file is located.
config Object with configuration of a given study. Should contain the slot ‘prefixes’ with prefixes of filenames with the student, home, school, and teacher data.
**intsrvy.rho.pv**

**Value**

intsrvy.rho returns a matrix including correlation and standard error values.

**See Also**

timss.rho, pirls.rho.pv, timss.rho.pv

**Examples**

```r
## Not run:
pirls.rho(variables=c("ASRREA01", "ASDAGE"), by="IDCNTRYL", data=pirls)
```

**Description**

intsrvy.rho.pv calculates the correlation and standard error among two achievement variables each based on 5 plausible values or one achievement variable and an observed variable (i.e., with observed scores rather than plausible values).

**Usage**

```r
intsrvy.rho.pv(variable, pvlabels, by, data, export=FALSE, name= "output", folder=getwd(), config)
```

**Arguments**

- `variable` A data label for the observed variable
- `pvlabels` One or two labels describing the achievement variables.
- `by` The label for the grouping variable, usually the countries (i.e., by="IDCNTRYL"), but could be any other categorical variable.
- `data` An R object, normally a data frame, containing the data.
- `export` A logical value. If TRUE, the output is exported to a file in comma-separated value format (.csv) that can be opened from LibreOffice or Excel.
- `name` The name of the exported file.
- `folder` The folder where the exported file is located.
- `config` Object with configuration of a given study. Should contain the slot ‘prefixes’ with prefixes of filenames with the student, home, school, and teacher data.

**Value**

intsrvy.rho returns a matrix including correlation and standard error values.
See Also

timss.rho, pirls.rho.pv, timss.rho.pv

Examples

```r
## Not run:
timss.rho.pv(variable="BSDGEDUP", pvalue="BSMMAT", by="IDCNTRYL", data=timss)

## End(Not run)
```

**intsvy.select.merge**

*Select and merge data*

**Description**

intsvy.select.merge selects and merges data from different international assessment studies. It was developed and it is particularly handy for importing IEA data since original files are organised by instrument, country, grade, etc., in a large number of files. Achievement and weight variables (all of them) are selected by default.

**Usage**

```r
intsvy.select.merge(folder = getwd(), countries, student = c(), home, school, teacher, config)
```

**Arguments**

- `folder` Directory path where the data are located. The data could be organised within folders but duplicated files should be avoided.
- `countries` The selected countries, supplied with the abbreviation (e.g., `countries=c("AUT", "BGR")`) or codes (`countries=c(40, 100)`). If no countries are selected, all are selected.
- `student` The data labels for the selected student variables.
- `home` The data labels for the selected home background variables.
- `school` The data labels for the selected school variables.
- `teacher` The data labels for the selected teacher data.
- `config` Object with configuration of a given study. Should contain the slot `prefixes` with prefixes of filenames with the student, home, school, and teacher data.

**Value**

intsvy.select.merge returns a data frame with the selected data from study defined in config file.

**See Also**

timssg4.select.merge, timssg8.select.merge, pisa.select.merge
**Examples**

```r
## Not run:
pirls <- intsvy.select.merge(folder= getwd(),
countries=c("AUS", "AUT", "AZE", "BFR"),
student= c("ITSEX", "ASDAGE", "ASBGSMR"),
home= c("ASDHEDUP", "ASDHOCCP", "ASDHHELA", "ASDBHELA"),
school= c("ACDGDA", "ACDGCM", "ACDG03"),
config = pirls_conf)

pirls <- intsvy.select.merge(folder= getwd(),
countries= c(36, 40, 31, 957),
student= c("ITSEX", "ASDAGE", "ASBGSMR"),
home= c("ASDHEDUP", "ASDHOCCP", "ASDHHELA", "ASDBHELA"),
school= c("ACDGDA", "ACDGCM", "ACDG03"),
config = pirls_conf)

timss8g <- intsvy.select.merge(folder= getwd(),
countries=c("AUS", "BHR", "ARM", "CHL"),
student =c("BSDGEDUP", "ITSEX", "BSDAGE", "BSBGSLM", "BSDGSLM"),
school=c("BCBGSAS", "BCG03"), config = timss8_conf)

icils <- intsvy.select.merge(folder= getwd(),
countries=c("AUS", "POL", "SVK"),
student =c("S_SEX", "S_TLANG", "S_MISEI"),
school =c("IP1G02J", "IP1G03A"),
config = icils_conf)

pisa <- pisa.select.merge(folder= getwd(),
school.file= "INT_SCQ12_DEC03.sav",
student.file= "INT_STU12_DEC03.sav",
student= c("ST01Q01", "ST04Q01", "ESCS", "PARED"),
school = c("CLSIZ", "TCSHORT"),
countries = c("HKG", "USA", "SWE", "POL", "PER")

## End(Not run)
```

---

**intsvy.table**

**Frequency table**

---

**Description**

`intsvy.table` produces a frequency table for a categorical variable printing percentages and standard errors.

**Usage**

`intsvy.table(variable, by, data, config)`
Arguments

variable  The data label with the variable to be analysed.
by        The label for the grouping variable, usually the countries (i.e., by="IDCNTRYL"), but could be any other categorical variable.
data      An R object, normally a data frame, containing the data from PISA.
config    Object with configuration of a given study. Should contain the slot 'prefixes' with prefixes of filenames with the student, home, school, and teacher data.

Value

intsy.table returns a data frame with percentages and standard errors.

See Also

timss.table, pirls.table

Examples

## Not run:
intsy.table(variable="ASDGSLM", by="IDCNTRYL", data=timss4, config = intsvy::timss_conf)
intsy.table(variable="ST08Q01", by="CNT", data=pisa, config=pisa_conf)

## End(Not run)

intsy.var.label  Data labels

Description

intsy.var.labels prints and saves variable labels and names of participating countries in a text file. The function is called by timssg4.var.label, timssg8.var.label, pirls.var.label and pisa.var.label.

Usage

intsy.var.label(folder = getwd(), name = "Variable labels", output = getwd(), config)

Arguments

caller  Directory path where the data files are located. The data could be organized within folders but duplicated files should be avoided. It is assumed that data is in 'sav' files. For TIMSS, PIRLS and ICILS studies the data can be downloaded from http://rms.iea-dpc.org/.
name   Name of the output file.
output
config

Folder where the output file is located.
Object with configuration of a given study. Should contain the slot ‘prefixes’
with prefixes of filenames with the student, home, school, and teacher data.

Value

intsvy.var.label returns a list with variable labels for the student, home, school, and teacher
data (if applied).

See Also

timssg4.var.label, timssg8.var.label, pirls.var.label, pisa.var.label

Examples

```r
## Not run:
intsvy.var.label(folder = getwd(), config = pirls_conf)
intsvy.var.label(folder = getwd(), config = timss8_conf)
intsvy.var.label(folder = getwd(), config = icils_conf)
intsvy.var.label(folder = getwd(), config = piaac_conf)

## End(Not run)
```

piaac.ben.pv

### PIAAC proficiency levels

Description

Calculates percentage of population at each proficiency level defined by PIAAC. Or at proficiency
levels provided by the user.

Usage

```r
piaac.ben.pv(pvlabel, by, data, cutoff, export=FALSE,
name= "output", folder=getwd())
```

Arguments

<table>
<thead>
<tr>
<th>Argument</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>pvlabel</td>
<td>The label corresponding to the achievement variable, for example, &quot;LIT&quot;, for overall reading performance.</td>
</tr>
<tr>
<td>by</td>
<td>The label for the grouping variable, usually the countries (i.e., by=&quot;CNTRYID&quot;), but could be any other categorical variable.</td>
</tr>
<tr>
<td>cutoff</td>
<td>The cut-off points for the assessment benchmarks (e.g., cutoff= c(357.77, 420.07, 482.38, 544.68, 606.99, 669.30)).</td>
</tr>
<tr>
<td>data</td>
<td>An R object, normally a data frame, containing the data from PIAAC.</td>
</tr>
<tr>
<td>export</td>
<td>A logical value. If TRUE, the output is exported to a file in comma-separated value format (.csv) that can be opened from LibreOffice or Excel.</td>
</tr>
<tr>
<td>name</td>
<td>The name of the exported file.</td>
</tr>
<tr>
<td>folder</td>
<td>The folder where the exported file is located.</td>
</tr>
</tbody>
</table>
Value

piaac.mean returns a data frame with the percentage of students at each proficiency level and its corresponding standard error.

The total weight, "TOTWGT" and the cut-off points or benchmarks are defined in the config object.

See Also

timss.ben.pv, pirls.ben.pv, pisa.ben.pv

Examples

```r
## Not run:
# Table A2.5
# Percentage of adults scoring at each proficiency level in numeracy
piaac.ben.pv(pvlabel="NUM", by="CNTRYID", data=piaac)
# Table A2.1
# Percentage of adults scoring at each proficiency level in literacy
piaac.ben.pv(pvlabel="LIT", by="CNTRYID", data=piaac)

## End(Not run)
```

---

**piaac.mean**  
Calculates mean of variable in PIAAC data

Description

Calculates the mean of an observed variable (NOT one with plausible values) and its standard error.

Usage

```r
piaac.mean(variable, by, data, export = FALSE,
           name = "output", folder = getwd())
```

Arguments

- `variable`  
The label corresponding to the observed variable, for example, "AGE_R" for age of respondent.
- `by`  
The label for the grouping variable, usually the countries (i.e., by="CNTRYID"), but could be any other categorical variable.
- `data`  
An R object, normally a data frame, containing the data from PIAAC.
- `export`  
A logical value. If TRUE, the output is exported to a file in comma-separated value format (.csv) that can be opened from LibreOffice or Excel.
- `name`  
The name of the exported file.
- `folder`  
The folder where the exported file is located.
**piaac.mean.pv**

**Value**

`piaac.mean` returns a data frame with means and standard errors.

**See Also**

`pisa.mean`, `timss.mean`, `pirls.mean`

**Examples**

```
## Not run
# install pbiecek/PIAAC package from github to have access to piaac data
piaac.mean(variable="AGE_R", by="CNTRYID", data=piaac)

## End(Not run)
```

---

**Description**

`piaac.mean.pv` uses ten plausible values to calculate the mean achievement score and its standard error.

**Usage**

```
piaac.mean.pv(pvlabel, by, data, export = FALSE, name = "output", folder = getwd())
```

**Arguments**

- **pvlabel**: The label corresponding to the achievement variable, for example, "LIT", for overall literacy performance, "NUM" for numeracy, "PSL" for problem solving.
- **by**: The label for the grouping variable, usually the countries (i.e., `by="CNTRYID"`), but could be any other categorical variable.
- **data**: An R object, normally a data frame, containing the data from PIAAC.
- **export**: A logical value. If TRUE, the output is exported to a file in comma-separated value format (.csv) that can be opened from LibreOffice or Excel.
- **name**: The name of the exported file.
- **folder**: The folder where the exported file is located.

**Value**

`piaac.mean.pv` returns a data frame with the mean values and standard errors.

**See Also**

`pisa.mean.pv`, `timss.mean.pv`, `pirls.mean.pv`
piaac.reg

Regression analysis for PIAAC

Description

piaac.reg performs linear regression analysis (OLS) for an observed dependent variable (NOT for plausible values)

Usage

piaac.reg(y, x, by, data, export = FALSE, name = "output", folder = getwd())

Arguments

y Label for dependent variable.

x Data labels of independent variables.

by The label for the grouping variable, usually the countries (i.e., by="CNTRYID"), but could be any other categorical variable.

data An R object, normally a data frame, containing the data from PIAAC.

export A logical value. If TRUE, the output is exported to a file in comma-separated value format (.csv) that can be opened from LibreOffice or Excel.

name The name of the exported file.

folder The folder where the exported file is located.

Value

piaac.reg returns a data frame with coefficients, standard errors and t-values. If "by" is specified, results are reported in a list. If the "by" argument is set, then the returning object is of the class "intsvy.reg" with overloaded function plot().

See Also

pisa.reg, pirls.reg, timss.reg
Examples

```r
## Not run:
# install package from github to have access to piaac data
piaac.reg(y="AGE_R", x="GENDER_R", by="CNTRYID", data=piaac)

## End(Not run)
```

---

**piaac.reg.pv**

*Regression analysis with plausible values for PIAAC*

Description

*piaac.reg.pv* performs linear regression analysis (OLS) with plausible values and replicate weights.

Usage

```r
piaac.reg.pv(x, pvlabel = "LIT", by, data,
export = FALSE, name = "output", std=FALSE, folder = getwd())
```

Arguments

- `x` Data labels of independent variables.
- `pvlabel` The label corresponding to the achievement variable, for example, "LIT", for overall literacy performance, "NUM" for numeracy, "PSL" for problem solving.
- `by` The label for the grouping variable, usually the countries (i.e., by="CNTRYID"), but could be any other categorical variable.
- `data` An R object, normally a data frame, containing the data from PIAAC.
- `export` A logical value. If TRUE, the output is exported to a file in comma-separated value format (.csv) that can be opened from LibreOffice or Excel.
- `name` The name of the exported file.
- `std` A logical value. If TRUE standardised regression coefficients are calculated.
- `folder` The folder where the exported file is located.

Value

*piaac.reg.pv* returns a data frame with coefficients, standard errors and t-values. If "by" is specified, results are reported in a list. If the "by" argument is set, then the returning object is of the class "intsrvy.reg" with overloaded function plot().

See Also

* pisa.reg.pv, timss.reg.pv, pirls.reg.pv
**Examples**

```r
## Not run:
# install pbiecek/PIAAC package from github to have access to piaac data
piaac.reg.pv(pvlabel="LIT", x="GENDER_R", by = "CNTRYID", data=piaac)

## End(Not run)
```

---

**piaac.table**

*Frequency table*

**Description**

piaac.table produces a frequency table for a categorical variable printing percentages and standard errors.

**Usage**

```r
piaac.table(variable, by, data, export = FALSE, name = "output", folder = getwd())
```

**Arguments**

- `variable`: The data label with the variable to be analysed.
- `by`: The label for the grouping variable, usually the countries (i.e., by="CNTRYID"), but could be any other categorical variable.
- `data`: An R object, normally a data frame, containing the data from PIAAC.
- `export`: A logical value. If TRUE, the output is exported to a file in comma-separated value format (.csv) that can be opened from LibreOffice or Excel.
- `name`: The name of the exported file.
- `folder`: The folder where the exported file is located.

**Value**

piaac.table returns a data frame with percentages and standard errors.

**See Also**

pisa.table, timss.table, pirls.table

**Examples**

```r
## Not run:
# install pbiecek/PIAAC package from github to have access to piaac data
piaac.table(variable="L_Q06A", by="CNTRYID", data=piaac)
piaac.table(variable="GENDER_R", by="CNTRYID", data=piaac)

## End(Not run)
```
Description

`pirls.ben.pv` calculates the percentage of students performing at or above the cut-off points (scores) given by the user. The default are the benchmarks established by PIRLS/TIMSS.

Usage

`pirls.ben.pv(pvlabel, by, cutoff, data, export = FALSE, name = "output", folder = getwd())`

Arguments

- `pvlabel`: The label corresponding to the achievement variable, for example, "ASRREA", for overall reading performance.
- `cutoff`: The cut-off points for the assessment benchmarks (e.g., `cutoff = c(400, 475, 550, 625)`).
- `by`: The label for the grouping variable, usually the countries (i.e., `by="IDCNTRYL"`), but could be any other categorical variable.
- `data`: An R object, normally a data frame, containing the data from PIRLS.
- `export`: A logical value. If TRUE, the output is exported to a file in comma-separated value format (.csv) that can be opened from LibreOffice or Excel.
- `name`: The name of the exported file.
- `folder`: The folder where the exported file is located.

Value

`pirls.ben.pv` returns a data frame with the percentage of students at or above the benchmark and the corresponding standard error.

The total weight, "TOTWGT" and the cut-off points or benchmarks are defined in the config object.

See Also

`timss.ben.pv, pisa.ben.pv`

Examples

```r
## Not run:
pirls.ben.pv(pvlabel="ASRREA", by="IDCNTRYL", data=pirls)

## End(Not run)```
**Description**

`pirls.log` performs logistic regression analysis for an observed dependent variable (NOT for plausible values)

**Usage**

```r
pirls.log(y, x, by, data, export = FALSE, name = "output", folder = getwd())
```

**Arguments**

- `y` Label for dependent variable
- `x` Data labels of independent variables (e.g., `x = c("ASDHEHLA", "ITSEX")`).
- `by` The label for the grouping variable, usually the countries (i.e., `by="IDCNTRYL"`), but could be any other categorical variable.
- `data` An R object, normally a data frame, containing the data from PIRLS.
- `export` A logical value. If TRUE, the output is exported to a file in comma-separated value format (.csv) that can be opened from LibreOffice or Excel.
- `name` The name of the exported file.
- `folder` The folder where the exported file is located.

**Value**

`pirls.log` prints a data frame with coefficients, standard errors, t-values, and odds ratios. Results are stored in a list object of class "intsy.reg".

**See Also**

`timss.log`, `pisa.log`

**Examples**

```r
## Not run:
# Table IV.5.14, p. 457 International Report 2012

pisa12$SKIP[pisa12$ST09Q01 == "None" & pisa12$ST15Q01 == "None"] <- 1
pisa12$SKIP[pisa12$ST09Q01 == "None" & pisa12$ST15Q01 == "None"] <- 0

pisa12$LATE[pisa12$ST08Q01="None"] <- 1
pisa12$LATE[pisa12$ST08Q01="None"] <- 0

pisa.log(y="SKIP", x="LATE", by="IDCNTRYL", data = pisa12)
```
```r
# from PISA2012lite
student2012$SKIP[(student2012$ST09Q01 == "None" & student2012$ST115Q01 == 1)] <- 1
student2012$SKIP[student2012$ST09Q01 == "None" & student2012$ST115Q01 == 1] <- 0

student2012$LATE[(student2012$ST08Q01 == "None") <- 1
student2012$LATE[student2012$ST08Q01 == "None"] <- 0

pisa.log(y="SKIP", x="LATE", by="CNT", data = student2012)

## End(Not run)
```

### Description

`pirls.log.pv` performs logistic regression with plausible values and replicate weights.

### Usage

```r
pirls.log.pv(pvlabel="ASRREA", x, cutoff, by,
             data, export=FALSE, name = "output", folder=getwd())
```

### Arguments

- **pvlabel**: The label corresponding to the achievement variable, for example, "ASRREA", for overall reading performance.
- **x**: Data labels of independent variables.
- **cutoff**: The cut-off point at which the dependent plausible values scores are dichotomised (1 is larger than the cut-off).
- **by**: The label for the categorical grouping variable (i.e., by="IDCNTRYL") or variables (e.g., x = c("IDCNTRYL", "ITSEX")).
- **data**: An R object, normally a data frame, containing the data from PIRLS.
- **export**: A logical value. If TRUE, the output is exported to a file in comma-separated value format (.csv) that can be opened from LibreOffice or Excel.
- **name**: The name of the exported file.
- **folder**: The folder where the exported file is located.

### Value

`pirls.log.pv` returns a data frame with coefficients, standard errors, t-values, and odds ratios. If "by" is specified, results are reported in a list.
See Also

pisa.log.pv, timss.log.pv

Examples

```r
## Not run:
timss.log.pv(pvlabel="BSMMAT", cutoff=550, x=c("ITSEX", "BSBGSLM"), by="IDCNTRYL", data=timss8g)
intsyv.log.pv(pvlabel="BSMMAT", cutoff=550, x="ITSEX", by="IDCNTRYL",
data=timss8g, config=timss8_conf)
```

## End(Not run)

---

**pirls.mean**  
*Calculates mean of variable*

### Description

Calculates the mean of an observed variable (NOT one with plausible values) and its standard error.

### Usage

```r
pirls.mean(variable, by, data,  
export = FALSE, name = "output", folder = getwd())
```

### Arguments

- **variable**: The label corresponding to the observed variable, for example, "ASDAGE", for the age of the student.
- **by**: The label for the grouping variable, usually the countries (i.e., by="IDCNTRYL"), but could be any other categorical variable.
- **data**: An R object, normally a data frame, containing the data from PIRLS.
- **export**: A logical value. If TRUE, the output is exported to a file in comma-separated value format (.csv) that can be opened from LibreOffice or Excel.
- **name**: The name of the exported file.
- **folder**: The folder where the exported file is located.

### Value

pirls.mean returns a data frame with means and standard errors.

### See Also

timss.mean, pisa.mean
pirls.mean.pv

Examples

```r
## Not run:
# PIRLS: Exhibit 2.17 User Guide PIRLS 2011, p. 28
pirls.mean(variable='ASBHELA', by= 'IDCNTRYL', data=pirls)

## End(Not run)
```

---

**pirls.mean.pv**

*Calculates mean achievement score*

**Description**

pirls.mean.pv uses five plausible values to calculate the mean achievement score and its standard error

**Usage**

```r
pirls.mean.pv(pvlabel = "ASRREA", by,
data, export = FALSE, name = "output", folder = getwd())
pirls2016.mean.pv(pvlabel = "ASRREA", by,
data, export = FALSE, name = "output", folder = getwd())
```

**Arguments**

- **pvlabel**: The label corresponding to the achievement variable, for example, "ASRREA", for overall reading performance.
- **by**: The label for the grouping variable, usually the countries (i.e., by="IDCNTRYL"), but could be any other categorical variable.
- **data**: An R object, normally a data frame, containing the data from PIRLS.
- **export**: A logical value. If TRUE, the output is exported to a file in comma-separated value format (.csv) that can be opened from LibreOffice or Excel.
- **name**: The name of the exported file.
- **folder**: The folder where the exported file is located.

**Value**

pirls.mean.pv returns a data frame with the mean values and standard errors.

**See Also**

timss.mean.pv, pisa.mean.pv
Examples

```r
## Not run:
# PIRLS: Exhibit 2.5 User Guide PIRLS 2011, p. 15
pirls.mean.pv(pvlabel="ASRREA", by="IDCNTRYL", data=pirls)
# PIRLS: Exhibit 2.8 User Guide PIRLS 2011, p. 18
pirls.mean.pv(pvlabel="ASRREA", by=c("IDCNTRYL", "ITSEX"), data=pirls)

## End(Not run)
```

---

### pirls.per.pv

**PIRLS percentiles**

#### Description

Calculates percentiles for plausible values

#### Usage

```r
pirls.per.pv(pvlabel="ASRREA", by, per, data, export=FALSE,
            name= "output", folder=getwd())
```

#### Arguments

- `pvlabel`: The label corresponding to the achievement variable, for example, "ASRREA", for overall reading performance.
- `per`: User-defined percentiles (e.g., `per = c(5, 10, 25, 75, 90, 95)`).
- `by`: The label of the categorical grouping variable (e.g., `by="IDCNTRYL"`) or variables (e.g., `by=c("IDCNTRYL", "ITSEX")`).
- `data`: An R object, normally a data frame, containing the data from PIRLS.
- `export`: A logical value. If TRUE, the output is exported to a file in comma-separated value format (.csv) that can be opened from LibreOffice or Excel.
- `name`: The name of the exported file.
- `folder`: The folder where the exported file is located.

#### Value

`pirls.per.pv` returns a data frame with percentiles and associated standard errors. Default weights (e.g. "TOTWGT" in TIMSS) and percentiles are specified in the config parameter.

#### See Also

`pisa.per.pv`, `timss.per.pv`
Examples

```
## Not run:
# Appendix F.1, p. 286, PIRLS 2011 International Results in Reading
pirls.per.pv(pvlabel="ASRREA", per = c(5, 10, 25, 50, 75, 90, 95), by="IDCNTRYL", data=pirls)

## End(Not run)
```

---

**pirls.reg**  
**Regression analysis**

**Description**

pirls.reg performs linear regression analysis (OLS) for an observed dependent variable (NOT for plausible values).

**Usage**

```
pirls.reg(y, x, by, data, export = FALSE,  
          name = "output", folder = getwd())
```

**Arguments**

- **y**: Label for dependent variable
- **x**: Data labels of independent variables (e.g., `x = c("ASDHEHLA", "ITSEX")`).
- **by**: The label for the grouping variable, usually the countries (i.e., `by="IDCNTRYL"`), but could be any other categorical variable.
- **data**: An R object, normally a data frame, containing the data from PIRLS.
- **export**: A logical value. If TRUE, the output is exported to a file in comma-separated value format (.csv) that can be opened from LibreOffice or Excel.
- **name**: The name of the exported file.
- **folder**: The folder where the exported file is located.

**Value**

pirls.reg prints a data.frame with regression results (i.e., coefficients, standard errors, t-values, R-squared) and stores different regression output including residuals and replicate coefficients in a list object of class “intsy.reg”.

**See Also**

timss.reg
Examples

```r
## Not run:

# Exhibit 3.13 in User Guide 2006, p. 68

# Recode ASBGBOOK

table(as.numeric(pirls$ASBGBOOK), pirls$ASBGBOOK)
pirls$BOOK[as.numeric(pirls$ASBGBOOK)==1] <- 5
pirls$BOOK[as.numeric(pirls$ASBGBOOK)==2] <- 18
pirls$BOOK[as.numeric(pirls$ASBGBOOK)==3] <- 63
pirls$BOOK[as.numeric(pirls$ASBGBOOK)==4] <- 151
pirls$BOOK[as.numeric(pirls$ASBGBOOK)==5] <- 251
table(pirls$BOOK)

pirls.reg(y = "BOOK", x = "ITSEX", by = "IDCNTRYL", data = pirls)

## End(Not run)
```

### Description

`pirls.reg.pv` performs linear regression analysis (OLS) with plausible values and replicate weights.

### Usage

```r
pirls.reg.pv(x, pvlabel = "ASRREA", by, 
data, std=FALSE, export = FALSE, name = "output", folder = getwd())
```

### Arguments

- **x**: Data labels of independent variables (e.g., `x = c("ASDHEHLA", "ITSEX")`).
- **pvlabel**: The label corresponding to the achievement variable, for example, "ASRREA", for overall reading performance.
- **by**: The label for the grouping variable, usually the countries (i.e., `by="IDCNTRYL"`), but could be any other categorical variable.
- **data**: An R object, normally a data frame, containing the data from PIRLS.
- **std**: A logical value. If TRUE standardised regression coefficients are calculated.
- **export**: A logical value. If TRUE, the output is exported to a file in comma-separated value format (.csv) that can be opened from LibreOffice or Excel.
- **name**: The name of the exported file.
- **folder**: The folder where the exported file is located.
Value

pirls.reg.pv prints a data.frame with regression results (i.e., coefficients, standard errors, t-values, R-squared) and stores different regression output including residuals, replicate coefficients, variance within and between, and the regression data.frame in a list object of class "intsvy.reg".

See Also

timss.reg.pv, pisa.reg.pv

Examples

## Not run:

# PIRLS: Exhibit 2.11, User Guide PIRLS 2011, p.21
pirls$SEX[pirls$ITSEX=="BOY"]=1
pirls$SEX[pirls$ITSEX=="GIRL"]=0
pirls.reg.pv(pvlabel="ASRREA", by="IDCNTRYL", x="SEX", data=pirls)

## End(Not run)

pirls.rho Correlation matrix

Description

pirls.rho produces a correlation matrix for observed variables (NOT for plausible values)

Usage

pirls.rho(variables, by, data,
export = FALSE, name = "output", folder = getwd())

Arguments

variables Data labels for the variables in the correlation matrix (e.g., variables=c("ASRREA01", "ASDAGE"))
by The label for the grouping variable, usually the countries (i.e., by="IDCNTRYL"), but could be any other categorical variable.
data An R object, normally a data frame, containing the data from PIRLS.
export A logical value. If TRUE, the output is exported to a file in comma-separated value format (.csv) that can be opened from LibreOffice or Excel.
name The name of the exported file.
folder The folder where the exported file is located.

Value

pirls.rho returns a matrix including correlation and standard error values.
See Also
timss.rho, pirls.rho, timss.rho

Examples

```r
## Not run:
pirls.rho(variables=c("ASRREA01", "ASDAGE"), by="IDCNTRYL", data=pirls)

## End(Not run)
```

pirls.rho.pv  
Two-way weighted correlation with plausible values

Description

pirls.rho.pv calculates the correlation and standard error among two achievement variables each based on 5 plausible values or one achievement variable and an observed variable (i.e., with observed scores rather than plausible values).

Usage

```r
pirls.rho.pv(variable, pvlabels, by, data, export = FALSE, name = "output", folder = getwd())
```

Arguments

- **variable**: A data label for the observed variable (e.g., variable="ASDAGE")
- **pvlabels**: One or two labels describing the achievement variables (e.g., pvlabels = c("ASRLIT", "ASRINF") )
- **by**: The label for the grouping variable, usually the countries (i.e., by="IDCNTRYL"), but could be any other categorical variable.
- **data**: An R object, normally a data frame, containing the data from PIRLS.
- **export**: A logical value. If TRUE, the output is exported to a file in comma-separated value format (.csv) that can be opened from LibreOffice or Excel.
- **name**: The name of the exported file.
- **folder**: The folder where the exported file is located.

Value

pirls.rho.pv returns a matrix with correlations and standard errors.

See Also
timss.rho.pv, pirls.rho, timss.rho
Examples

```r
## Not run:
# Exhibit A.15 p.309 in International report 2006
pirls.rho.pv(pvlabels=c("ASRLIT", "ASRINF"), by="IDCNTRYL", data=pirls)

## End(Not run)
```

---

### pirls.select.merge

**Select and merge data**

#### Description

pirls.select.merge selects and merges data from PIRLS. Achievement and weight variables (all of them) are selected by default.

#### Usage

```r
pirls.select.merge(folder = getwd(), countries, student = c(),
                   home, school, teacher)
```

#### Arguments

- `folder`: Directory path where the data are located. The data could be organized within folders but it should not be duplicated.
- `countries`: The selected countries, supplied with the abbreviation (e.g., `countries=c("AUT", "BGR")`) or codes (`countries=c(40, 100)`). If no countries are selected, all are selected.
- `student`: The data labels for the selected student variables.
- `home`: The data labels for the selected home background variables.
- `school`: The data labels for the selected school variables.
- `teacher`: The data labels for the selected teacher data.

#### Value

pirls.select.merge returns a data frame with the selected data from PIRLS.

#### See Also

`timssg4.select.merge, timssg8.select.merge, pisa.select.merge`
Examples

```r
## Not run:
pirls <- pirls.select.merge(folder = getwd(),
countries = c(36, 40, 31, 957),
student = c("ITSEX", "ASDAGE", "ASBGSMR"),
home = c("ASDHEDUP", "ASDHOCCP", "ASDHELA", "ASBHELA"),
school = c("ACDGDAAS", "ACDGMP", "ACDG03"))

## End(Not run)
```

### pirls.table

#### Frequency Table

#### Description

`pirls.table` produces a frequency table for a categorical variable printing percentages and standard errors. Information about weight is extracted from `intsvy::pirls_conf`.

#### Usage

```r
pirls.table(variable, by, data,
export = FALSE, name = "output", folder = getwd())
```

#### Arguments

- `variable` The data label with the variable to be analysed.
- `by` The label for the grouping variable, usually the countries (i.e., by="IDCNTRYL"), but could be any other categorical variable.
- `data` An R object, normally a data frame, containing the data from PIRLS.
- `export` A logical value. If TRUE, the output is exported to a file in comma-separated value format (.csv) that can be opened from LibreOffice or Excel.
- `name` The name of the exported file.
- `folder` The folder where the exported file is located.

#### Value

`pirls.table` returns a data frame with percentages and standard errors.

#### See Also

`timss.table`, `pisa.table`
Examples

## Not run:
```r
# PIRLS: Exhibit 2.19 User Guide 2011, p. 30
pirls.table(variable="ASDHELA", by="IDCNTRYL", data=pirls)
```

## End(Not run)

---

### pirls.var.label

#### Data labels

**Description**

`pirls.var.labels` prints and saves variable labels and names of participating countries in a text file

**Usage**

```r
pirls.var.label(folder = getwd(), name = "Variable labels", output = getwd())
```

**Arguments**

<table>
<thead>
<tr>
<th>Argument</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>folder</code></td>
<td>Directory path where the PIRLS data are located. The data could be organized within folders but it should not be duplicated.</td>
</tr>
<tr>
<td><code>name</code></td>
<td>Name of output file.</td>
</tr>
<tr>
<td><code>output</code></td>
<td>Folder where output file is located.</td>
</tr>
</tbody>
</table>

**Value**

`pirls.var.label` returns a list with variable labels for the student, home, school, and teacher data.

**See Also**

`timssg4.var.label`, `timssg8.var.label`, `pisa.var.label`

**Examples**

## Not run:
```r
pirls.var.label(folder = getwd())
```

## End(Not run)
pisa.ben.pv  

PISA proficiency levels

Description

Calculates percentage of students at each proficiency level defined by PISA. Or at proficiency levels provided by the user. Use the pisa2015.ben.pv() for data from PISA 2015 study.

Usage

pisa.ben.pv(pvlabel, by, cutoff, data, export=FALSE, name= "output", folder=getwd())
pisa2015.ben.pv(pvlabel, by, cutoff, data, export=FALSE, name= "output", folder=getwd())

Arguments

pvlabel  
The label corresponding to the achievement variable, for example, "READ", for overall reading performance.

Cutoff  
The cut-off points for the assessment benchmarks (e.g., cutoff= c(357.77, 420.07, 482.38, 544.68, 606.99, 669.30)).

by  
The label for the grouping variable, usually the countries (i.e., by="IDCNTRYL"), but could be any other categorical variable.

data  
An R object, normally a data frame, containing the data from PISA.

export  
A logical value. If TRUE, the output is exported to a file in comma-separated value format (.csv) that can be opened from LibreOffice or Excel.

name  
The name of the exported file.

folder  
The folder where the exported file is located.

Value

pisa.ben.pv returns a data frame with the percentage of students at each proficiency level and its corresponding standard error.

The total weight, "TOTWGT" and the cut-off points or benchmarks are defined in the config object.

See Also

timss.ben.pv, pirls.ben.pv

Examples

```r
## Not run:
# Table I.2.1a, p. 298 International Report 2012 Volume I
pisa.ben.pv(pvlabel="MATH", by="IDCNTRYL", data=pisa)
```

## End(Not run)
**Description**

`pisa.log` performs logistic regression analysis (OLS) for an observed dependent variable (NOT for plausible values). Use the `pisa2015.log()` for data from PISA 2015 study.

**Usage**

```r
pisa.log(y, x, by, data, export=FALSE, name="output", folder=getwd())
pisa2015.log(y, x, by, data, export=FALSE, name="output", folder=getwd())
```

**Arguments**

- `y`: Label for dependent variable.
- `x`: Data labels of independent variables.
- `by`: The label for the grouping variable, usually the countries (i.e., `by="CNT"`), but could be any other categorical variable.
- `data`: An R object, normally a data frame, containing the data from PISA.
- `export`: A logical value. If TRUE, the output is exported to a file in comma-separated value format (.csv) that can be opened from LibreOffice or Excel.
- `name`: The name of the exported file.
- `folder`: The folder where the exported file is located.

**Value**

`pisa.log` prints a `data.frame` with regression results (i.e., coefficients, standard errors, t-values, R-squared) and stores replicate estimates and other regression output in a list object of class "intsy.reg".

**See Also**

`pirls.log`, `timss.log`

**Examples**

```r
## Not run:
# Table IV.5.14, p. 457 International Report 2012
pisa12$SKIP[(pisa12$ST9Q01 == "None" & pisa12$ST11Q01 == "None")]
pisa12$SKIP[pisa12$ST9Q01 == "None" & pisa12$ST11Q01 == "None"]

pisa12$LATE[pisa12$ST8Q01=="None"]
pisa12$LATE[pisa12$ST8Q01=="None"]

pisa.log(y="SKIP", x="LATE", by="IDCNTRYL", data = pisa12)
```
pisa.log.pv

# from PISA2012lite

student2012$SKIP[!(student2012$ST09Q01 == "None" & student2012$ST115Q01 == 1)] <- 1
student2012$SKIP[student2012$ST09Q01 == "None" & student2012$ST115Q01 == 1] <- 0

student2012$LATE[student2012$ST08Q01=="None"] <- 1
student2012$LATE[student2012$ST08Q01=="None"] <- 0

pisa.log(y="SKIP", x="LATE", by="CNT", data = student2012)

# End(Not run)

Description

pisa.log.pv performs logistic regression with plausible values and replicate weights. Use the pisa2015.log.pv() for data from PISA 2015 study.

Usage

pisa.log.pv(pvlabel="READ", x, by, cutoff,
  data, export=FALSE, name = "output", folder=getwd())
pisa2015.log.pv(pvlabel="READ", x, by, cutoff,
  data, export=FALSE, name = "output", folder=getwd())

Arguments

pvlabel The label corresponding to the achievement variable, for example, "READ", for overall reading performance.

x Data labels of independent variables.

cutoff The cut-off point at which the dependent plausible values scores are dichotomised (1 is larger than the cut-off)

by The label for the categorical grouping variable (i.e., by="IDCNTRYL") or variables (e.g., x=c("IDCNTRYL", "ST79Q03").)

data An R object, normally a data frame, containing the data from PISA.

export A logical value. If TRUE, the output is exported to a file in comma-separated value format (.csv) that can be opened from LibreOffice or Excel.

name The name of the exported file.

folder The folder where the exported file is located.

Value

pisa.log.pv returns a data frame with coefficients, standard errors, t-values, and odds ratios. If "by" is specified, results are reported in a list.
pisa.mean

See Also
timss.log.pv, pirls.log.pv

Examples

```r
## Not run:
timss.log.pv(pvlabel="BSMMAT", cutoff= 550, x=c("ITSEX", "BSBGSLM"), by="IDCNTRYL", data=timss8g)
intsvy.log.pv(pvlabel="BSMMAT", cutoff= 550, x="ITSEX", by="IDCNTRYL",
data=timss8g, config=timss8_conf)

## End(Not run)
```

---

**pisa.mean**  
*Calculates mean of variable*

**Description**

Calculates the mean of an observed variable (NOT one with plausible values) and its standard error. Use the pisa2015.mean() for data from PISA 2015 study.

**Usage**

```r
pisa.mean(variable, by, data, export = FALSE,  
name = "output", folder = getwd())
pisa2015.mean(variable, by, data, export = FALSE,  
name = "output", folder = getwd())
```

**Arguments**

- **variable**  
The label corresponding to the observed variable, for example, "ESCS", for the student SES.

- **by**  
The label for the grouping variable, usually the countries (i.e., by="IDCNTRYL"), but could be any other categorical variable.

- **data**  
An R object, normally a data frame, containing the data from PISA.

- **export**  
A logical value. If TRUE, the output is exported to a file in comma-separated value format (.csv) that can be opened from LibreOffice or Excel.

- **name**  
The name of the exported file.

- **folder**  
The folder where the exported file is located.

**Value**

pisa.mean returns a data frame with means and standard errors.

**See Also**
timss.mean, pirls.mean, piaac.mean
Examples

```r
# Not run:
# PISA 2012: Table II.2.3, p. 183
pisa.mean(variable="ESCS", by="IDCNTRYL", data=pisa)
pisa.mean(variable="PARED", by="IDCNTRYL", data=pisa)

# PISA 2012: Table III.2.3d, p. 252
pisa.mean(variable="BELONG", by="IDCNTRYL", data=pisa)
pisa.mean(variable="BELONG", by=c("IDCNTRYL", "STQ01"), data=pisa)

# PISA 2015
pisa2015.mean(variable="AGE", by="CNT", data=stud2015)

## End(Not run)
```

**pisa.mean.pv**  
*Calculates mean achievement score*

Description

pisa.mean.pv uses five plausible values to calculate the mean achievement score and its standard error. Use the pisa2015.mean.pv() for data from PISA 2015 study.

Usage

```r
pisa.mean.pv(pvlabel, by, data, export = FALSE, name = "output",
folder = getwd())
pisa2015.mean.pv(pvlabel, by, data, export = FALSE, name = "output",
folder = getwd())
```

Arguments

- **pvlabel**: The label corresponding to the achievement variable, for example, "READ", for overall reading performance.
- **by**: The label for the grouping variable, usually the countries (i.e., by="IDCNTRYL"), but could be any other categorical variable.
- **data**: An R object, normally a data frame, containing the data from PIRLS.
- **export**: A logical value. If TRUE, the output is exported to a file in comma-separated value format (.csv) that can be opened from LibreOffice or Excel.
- **name**: The name of the exported file.
- **folder**: The folder where the exported file is located.

Value

pisa.mean.pv returns a data frame with the mean values and standard errors.
pisa.per.pv

See Also
timss.mean.pv, pirls.mean.pv, piaac.mean.pv

Examples

```r
## Not run:
# Table I.2.3a, p. 305 International Report 2012
pisa.mean.pv(pvlabel = "MATH", by = "IDCNTRYL", data = pisa)
pisa.mean.pv(pvlabel = "MATH", by = c("IDCNTRYL", "ST04Q01"), data = pisa)

# Table III.2.1a, p. 232, International Report 2012
pisa.mean.pv(pvlabel="MATH", by=c("IDCNTRYL", "ST08Q01"), data=pisa)

# Figure I.2.16 p. 56 International Report 2009
pisa.mean.pv(pvlabel = "READ", by = "IDCNTRYL", data = pisa)

# PISA 2015
pisa2015.mean.pv(pvlabel = "READ", by = "CNT", data = stud2015)

## End(Not run)
```

pisa.per.pv  

PISA percentiles

Description

Calculates percentiles for plausible values. Use the pisa2015.per.pv() for data from PISA 2015 study.

Usage

```r
pisa.per.pv(pvlabel="READ", by, per, data, export=FALSE, name= "output", folder=getwd())
pisa2015.per.pv(pvlabel="READ", by, per, data, export=FALSE, name= "output", folder=getwd())
```

Arguments

- `pvlabel`  
The label corresponding to the achievement variable, for example, "READ", for overall reading performance.

- `per`  
User-defined percentiles (e.g., per = c(5, 10, 25, 75, 90, 95)).

- `by`  
The label of the categorical grouping variable (e.g., by="IDCNTRYL") or variables (e.g., by=c("IDCNTRYL", "ST79Q03").

- `data`  
An R object, normally a data frame, containing the data from PISA.
export          A logical value. If TRUE, the output is exported to a file in comma-separated value format (.csv) that can be opened from LibreOffice or Excel.

name            The name of the exported file.

folder          The folder where the exported file is located.

Value

pisa.per.pv returns a data frame with percentiles and associated standard errors. Default weights (e.g. "TOTWGT" in TIMSS) and percentiles are specified in the config parameter.

See Also

timss.per.pv, pirls.per.pv

Examples

```r
## Not run:
# Table 1.2.3d, p. 309 International Report 2012 Volume I
pisa.per.pv(pvlabel="MATH", per=c(10, 25, 75, 90), by="IDCNTRYL", data=pisa)
# PISA 2015
pisa2015.per.pv(pvlabel="MATH", per=c(10, 25, 75, 90), by="CNT", data=stud2015)

## End(Not run)
```

Example of pisa.reg

Regression analysis

pisa.reg performs linear regression analysis (OLS) for an observed dependent variable (NOT for plausible values) Use the pisa2015.reg() for data from PISA 2015 study.

Usage

```r
pisa.reg(y, x, by, data, export = FALSE, name = "output", folder = getwd())
pisa2015.reg(y, x, by, data, export = FALSE, name = "output", folder = getwd())
```

Arguments

```r
y      Label for dependent variable.
x      Data labels of independent variables.
by     The label for the grouping variable, usually the countries (i.e., by="IDCNTRYL"), but could be any other categorical variable.
data   An R object, normally a data frame, containing the data from PISA.
export A logical value. If TRUE, the output is exported to a file in comma-separated value format (.csv) that can be opened from LibreOffice or Excel.
name   The name of the exported file.
folder The folder where the exported file is located.
```
pisa.reg.pv

Value

pisa.reg prints a data.frame with regression results (i.e., coefficients, standard errors, t-values, R-squared) and stores different regression output including residuals and replicate coefficients in a list object of class "intsvy.reg".

See Also

pirls.reg, timss.reg, piaac.reg

Examples

### Not run:
# Table III.2.3d, p. 252 International Report 2012
pisa.reg(y="BELONG", x="ST04Q01", by="IDCNTRYL", data=pisa)
# PISA 2015
pisa2015.reg(y="AGE", x="OECD", by="ST04D01T", data=stud2015)

### End(Not run)

### pisa.reg.pv  Regression analysis with plausible values

Description

pisa.reg.pv performs linear regression analysis (OLS) with plausible values and replicate weights. Use the pisa2015.reg.pv() for data from PISA 2015 study.

Usage

\[
\text{pisa.reg.pv}(x, \text{pvlabel} = \"READ\", \text{by}, \text{data}, \\
\text{export} = \text{FALSE}, \text{name} = \text{\"output\"}, \text{folder} = \text{getwd()}, \text{std} = \text{FALSE})
\]

pisa2015.reg.pv(x, pvlabel = "READ", by, data, \\
export = FALSE, name = "output", folder = getwd(), std=FALSE)

Arguments

- **x**   Data labels of independent variables.
- **pvlabel**   The label corresponding to the achievement variable, for example, "READ", for overall reading performance.
- **by**   The label for the grouping variable, usually the countries (i.e., by="IDCNTRYL"), but could be any other categorical variable.
- **data**   An R object, normally a data frame, containing the data from PISA.
- **export**   A logical value. If TRUE, the output is exported to a file in comma-separated value format (.csv) that can be opened from LibreOffice or Excel.
- **name**   The name of the exported file.
- **folder**   The folder where the exported file is located.
- **std**   A logical value. If TRUE standardised regression coefficients are calculated.
Value

pisa.reg.pv prints a data.frame with regression results (i.e., coefficients, standard errors, t-values, R-squared) and stores different regression output including residuals, replicate coefficients, variance within and between, and the regression data.frame in a list object of class "intsrvy.reg".

See Also

timss.reg.pv, pirls.reg.pv, piaac.reg.pv

Examples

```r
## Not run:
# Table I.2.3a, p. 305, International Report 2012
pisa.reg.pv(pvlabel="MATH", x="ST04Q01", by = "IDCNTRYL", data=pisa)

## End(Not run)
```

---

**Description**

pisa.rho produces a correlation matrix for observed variables (NOT for plausible values) Use the pisa2015.rho() for data from PISA 2015 study.

**Usage**

```r
pisa.rho(variables = by, data, export=FALSE, name = "output", folder=getwd())
pisa2015.rho(variables = by, data, export=FALSE, name = "output", folder=getwd())
```

**Arguments**

- `variables`: Data labels for the variables in the correlation matrix (e.g., variables=c("TCHBEHTD", "TCHBEHSO"))
- `by`: The label for the grouping variable, usually the countries (i.e., by="IDCNTRYL"), but could be any other categorical variable.
- `data`: An R object, normally a data frame, containing the data from PISA.
- `export`: A logical value. If TRUE, the output is exported to a file in comma-separated value format (.csv) that can be opened from LibreOffice or Excel.
- `name`: The name of the exported file.
- `folder`: The folder where the exported file is located.

**Value**

pisa.rho returns a matrix including correlation and standard error values.
**Description**

pisa.select.merge selects and merges data from PISA. Achievement and weight variables (all of them) are selected by default.

**Usage**

```r
pisa.select.merge(folder=getwd(), student.file, parent.file=c(), school.file=c(), countries, student=c(), parent, school)
```

**Arguments**

- `folder` Directory path where the PISA data are located, if all the data are located in the same folder.
- `student.file` Student file name if 'folder' is provided, otherwise full path name of student dataset (required argument).
- `parent.file` Parent file name if 'folder' is provided, otherwise full path name of parent dataset.
- `school.file` School file name if 'folder' is provided, otherwise full path name of school dataset.
- `countries` The selected countries, supplied with the abbreviation (e.g., countries=c("DEU", "NOR") or codes. If no countries are selected, all are selected.
- `student` The data labels for the selected student variables.
- `parent` The data labels for the selected parental variables.
- `school` The data labels for the selected school variables.

**Value**

pisa.select.merge returns a data frame with the selected data from PISA.

**See Also**

timss.rho, pirls.rho, pirls.rho.pv, timss.rho.pv

**Examples**

```r
## Not run:
pisa.rho(variables=c("COGACT", "TCHBEHTD", "TCHBEHSO", "CLSMAN" ), by="IDCNTRYL", data=pisa)
pisa2015.rho(variables=c("AGE", "PV1MATH"), by="CNT", data=stud2015)

## End(Not run)
```
See Also
timssg4.select.merge, timssg8.select.merge, pirls.select.merge

Examples

```r
## Not run:
pisa <- pisa2015.select.merge(folder=getwd(),
school.file="INT_SCQ12_DEC03.sav",
student.file="INT_STU12_DEC03.sav",
parent.file="INT_PAQ12_DEC03.sav",
student$ c("IMMIG", "ESCS", "ST04Q01", "ST61Q04", "ST62Q01", "ST08Q01"),
parent$ c("PARINVOL", "PARSUPP"),
school$ c("STRATIO", "SCHAUTON", "CLSIZE"),
countries$ c("HKG", "USA", "SWE", "POL", "PER"))

## End(Not run)
```

---

**pisa.table**

**Frequency table**

Description

pisa.table produces a frequency table for a categorical variable printing percentages and standard errors. Use the pisa2015.table() for data from PISA 2015 study.

Usage

```r
pisa.table(variable, by, data, export = FALSE, name = "output", folder = getwd())
pisa2015.table(variable, by, data, export = FALSE, name = "output", folder = getwd())
```

Arguments

- **variable**: The data label with the variable to be analysed.
- **by**: The label for the grouping variable, usually the countries (i.e., by="IDCNTRYL")
  but could be any other categorical variable.
- **data**: An R object, normally a data frame, containing the data from PISA.
- **export**: A logical value. If TRUE, the output is exported to a file in comma-separated
  value format (.csv) that can be opened from LibreOffice or Excel.
- **name**: The name of the exported file.
- **folder**: The folder where the exported file is located.

Value

pisa.table returns a data frame with percentages and standard errors.
pisa.var.label

See Also
timss.table, pirls.table

Examples

## Not run:
# Table A2.4a, p.274 International Report 2012 Volume I
pisa.table(variable="ST01Q01", by="IDCNTRYL", data=pisa)
# Table III.2.1a, p. 232, International Report 2012 Volume III
pisa.table(variable="ST08Q01", by="IDCNTRYL", data=pisa)
# PISA 2015
pisa2015.table(variable="ST004D01T", by="CNT", data=stud2015)

## End(Not run)

---

pisa.var.label | Data labels

Description

pisa.var.labels prints and saves variable labels and names of participating countries in a text file

Usage

pisa.var.label(folder=getwd(), student.file, parent.file=c(), school.file=c(),
name="Variable labels", output=getwd())

Arguments

<table>
<thead>
<tr>
<th>Argument</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>folder</td>
<td>Directory path where the PISA data are located, if all the data are located in the same folder.</td>
</tr>
<tr>
<td>student.file</td>
<td>Student file name if ‘folder’ is provided, otherwise full path name of student dataset (required argument).</td>
</tr>
<tr>
<td>parent.file</td>
<td>Parent file name if ‘folder’ is provided, otherwise full path name of parent dataset.</td>
</tr>
<tr>
<td>school.file</td>
<td>School file name if ‘folder’ is provided, otherwise full path name of school dataset.</td>
</tr>
<tr>
<td>name</td>
<td>Name of output file.</td>
</tr>
<tr>
<td>output</td>
<td>Folder where output file is located.</td>
</tr>
</tbody>
</table>

Value

pisa.var.label returns a list with variable labels for the student, parent, and school data.

See Also
timssg4.var.label, timssg8.var.label, pirls.var.label
plot.intsvy.mean

Graphical representation of means in groups

Description

Functions pisa.mean, pisa.mean.pv, piaac.mean, piaac.mean.pv produce object of the class intsvy.mean. The function plot.intsvy.mean presents these means graphically.

Usage

## S3 method for class 'intsvy.mean'
plot(x, se = TRUE, sort = FALSE, ...)

Arguments

x
An object of the class intsvy.mean returned by pisa.mean, pisa.mean.pv, piaac.mean or piaac.mean.pv functions.

se
If TRUE add whiskers for standard errors.

sort
If TRUE groups are sorted along averages.

... Not used. Required for cran-check.

Value

Returns object of ggplot class with dotplot. Works for one way, two-way and three-way effects.

See Also

plot.intsvy.table, plot.intsvy.reg

Examples

## Not run:
# Country averages
head(pmeansNC <- piaac.mean.pv(pvlabel="NUM", by="CNTRYID", data=piaac, export=FALSE))

# plotting country average NUM performance
plot(pmeansNC) + ggtitle("Country performance in NUM")
# without se bars, not good idea
plot(pmeansNC, se=FALSE)
# sorted, thats better
plot(pmeansNC, sort=TRUE)
Description

Functions pisa.reg, pisa.reg.pv, piaac.reg and piaac.reg.pv produce object of the class intsvy.reg. The function plot.intsvy.reg presents this list of regression models graphically.

Usage

## S3 method for class 'intsvy.reg'
plot(x, ..., vars, se = TRUE, sort = FALSE)

Arguments

- `x`: An object of the class intsvy.reg returned by pisa.reg, pisa.reg.pv, piaac.reg and piaac.reg.pv functions.
- `...`: Other arguments
- `vars`: Variable labels of coefficients to be plotted. If none selected all coefficients are plotted including the R-squared
- `se`: If TRUE add whiskers for standard errors.
- `sort`: If TRUE groups are sorted in alphabetical order.

Value

Returns object of ggplot class with barplot. As with other ggplot objects the plus sign "+" can be used outside this function to modify graph parameters of the returning ggplot object. Works for one way, two-way and three-way contingency tables.
plot.intsvy.table

Graphical representation of frequency tables

Description

Functions pisa.table and piaac.table produce object of the class intsvy.table. The function plot.intsvy.table presents this table graphically.

Usage

## S3 method for class 'intsvy.table'
plot(x, se=FALSE, stacked=FALSE, centered = FALSE, midpoint = NA, ...)

Arguments

- **x**
  - An object of the class intsvy.table returned by pisa.table or piaac.table functions.
- **se**
  - If TRUE add whiskers for standard errors (only for stacked=FALSE).
- **stacked**
  - If TRUE plot bars stacked one over another.
- **centered**
  - If TRUE then bars will be centered around midpoint.
- **midpoint**
  - A single number, which specifies the segment around which bars are centered. By default it’s the middle segment calculated as \((n.\text{levels} + 1)/2\). If \(n.\text{levels}\) is odd then bars are centered around the beginning of the selected segment. If \(n.\text{levels}\) is even then bars are centered around the middle of the selected segment.
- **...**
  - Not used. Required for cran-check.

Value

Returns object of ggplot class with barplot. Works for one way, two-way and three-way contingency tables.
timss.ben.pv 53

See Also
plot.intsvy.mean, plot.intsvy.reg

Examples

## Not run:
# install pbiecek/PIAAC package from github to have access to piaac data
# age distribution in whole dataset
(ptable <- piaac.table(variable="AGEG10LFS", data=piaac))

# age distribution in whole dataset
plot(ptable)
plot(ptable, centered=TRUE)

# age distribution within countries
head(ptableC <- piaac.table(variable="AGEG10LFS", by="CNTRYID", data=piaac))

# age distribution within countries
plot(ptableC, stacked=TRUE)
plot(na.omit(ptableC), centered=TRUE)

# age distribution within countries and gender segments
head(ptableCA <- piaac.table(variable="AGEG10LFS", by=c("CNTRYID", "GENDER_R"), data=piaac))

# age distribution within countries and gender segments
plot(na.omit(ptableCA), stacked=TRUE)
plot(na.omit(ptableCA), centered=TRUE)

## End(Not run)

---

**timss.ben.pv**

**TIMSS international benchmarks**

Description

timss.ben.pv calculates the percentage of students performing at or above the cut-off points (scores) given by the user. The default are the benchmarks established by PIRLS/TIMSS.

Usage

timss.ben.pv(pvlabel, by, cutoff, data,
export = FALSE, name = "output", folder = getwd())

Arguments

pvlabel The label corresponding to the achievement variable, for example, "BSMMAT", for overall math performance.
timss.log

Description

timss.log performs logistic regression analysis for an observed dependent variable (NOT for plausible values)

Usage

timss.log(y, x, by, data, export = FALSE, name = "output", folder = getwd())

Value
timss.ben.pv returns a data frame with the percentage of students at or above the benchmark and the corresponding standard error.

The total weight, "TOTWGT" and the cut-off points or benchmarks are defined in the config object.

See Also

pirls.ben.pv, pisa.ben.pv

Examples

## Not run:
timss.ben.pv(pvlabel="BSMMAT", by="IDCNRTRYL", cutoff = c(400, 475, 550, 625), data=timss8g)
# TIMSS G4: Exhibit 2.2 International Report TIMSS 2011, p. 90
timss.ben.pv(pvlabel="ASMMAT", by="IDCNRTRYL", data=timss4g)

## End(Not run)
Arguments

- **y**: Label for dependent variable
- **x**: Data labels of independent variables (e.g., `x = c("ASDHEHLA", "ITSEX")`).
- **by**: The label for the grouping variable, usually the countries (i.e., `by="IDCNTRYL"`), but could be any other categorical variable.
- **data**: An R object, normally a data frame, containing the data from PIRLS.
- **export**: A logical value. If TRUE, the output is exported to a file in comma-separated value format (.csv) that can be opened from LibreOffice or Excel.
- **name**: The name of the exported file.
- **folder**: The folder where the exported file is located.

Value

timss.log prints a data frame with coefficients, standard errors, t-values, and odds ratios. Results are stored in a list object of class "intsyv.reg".

See Also

- pirls.log
- pisa.log

Examples

```r
## Not run:
# Table IV.5.14, p. 457 International Report 2012

pisa2$SKIP[1(pisa2$STG9Q01 == "None" & pisa2$ST15Q01 == "None")]<-1
pisa2$SKIP[1(pisa2$STG9Q01 == "None" & pisa2$ST15Q01 == "None")]<-0

pisa2$LATE[1(pisa2$STG8Q01 == "None")]<-1
pisa2$LATE[1(pisa2$STG8Q01 == "None")]<-0

pisa.log(y="SKIP", x="LATE", by="IDCNTRYL", data = pisa2)

# from PISA2012lite

student2012$SKIP[1(student2012$STG9Q01 == "None" & student2012$ST15Q01 == 1)]<-1
student2012$SKIP[1(student2012$STG9Q01 == "None" & student2012$ST15Q01 == 1)]<-0

student2012$LATE[1(student2012$STG8Q01 == "None")]<-1
student2012$LATE[1(student2012$STG8Q01 == "None")]<-0

pisa.log(y="SKIP", x="LATE", by="CNT", data = student2012)

## End(Not run)
```
**timss.log.pv**  
*Logistic regression analysis with plausible values*

**Description**

timss.log.pv performs logistic regression with plausible values and replicate weights.

**Usage**

```r
timss.log.pv(pvlabel="BSMMAT", x, by, cutoff,
data, export=FALSE, name = "output", folder=getwd())
```

**Arguments**

- **pvlabel**  
The label corresponding to the achievement variable, for example, "BSMMAT", for overall mathematics performance.

- **x**  
Data labels of independent variables.

- **cutoff**  
The cut-off point at which the dependent plausible values scores are dichotomised (1 is larger than the cut-off)

- **by**  
The label for the categorical grouping variable (i.e., by="IDCNTRYL") or variables (e.g., x= c("IDCNTRYL", "ITSEX")).

- **data**  
An R object, normally a data frame, containing the data from TIMSS.

- **export**  
A logical value. If TRUE, the output is exported to a file in comma-separated value format (.csv) that can be opened from LibreOffice or Excel.

- **name**  
The name of the exported file.

- **folder**  
The folder where the exported file is located.

**Value**

timss.log.pv returns a data frame with coefficients, standard errors, t-values, and odds ratios. If "by" is specified, results are reported in a list.

**See Also**

- pisa.log.pv, pirls.log.pv

**Examples**

```r
## Not run:  
timss.log.pv(pvlabel="BSMMAT", cutoff= 550, x=c("ITSEX", "BSBGSML"), by="IDCNTRYL", data=timss8g)
intsvy.log.pv(pvlabel="BSMMAT", cutoff= 550, x="ITSEX", by="IDCNTRYL",  
data=timss8g, config=timss8_conf)
```

## End(Not run)
timss.mean  Calculates mean of variable

Description

Calculates the mean of an observed variable (NOT one with plausible values) and its standard error.

Usage

```r
timss.mean(variable, by, data,
export = FALSE, name = "output", folder = getwd())
```

Arguments

- `variable`: The label corresponding to the observed variable, for example, "ASDAGE", for the age of the student.
- `by`: The label for the grouping variable, usually the countries (i.e., by="IDCNRTRYL"), but could be any other categorical variable.
- `data`: An R object, normally a data frame, containing the data from TIMSS.
- `export`: A logical value. If TRUE, the output is exported to a file in comma-separated value format (.csv) that can be opened from LibreOffice or Excel.
- `name`: The name of the exported file.
- `folder`: The folder where the exported file is located.

Value

`timss.mean` returns a data frame with means and standard errors.

See Also

`pirls.mean`, `pisa.mean`

Examples

```r
## Not run:
# TIMSS G4: Exhibit 8.1 International Report TIMSS 2011, p. 330
timss.mean(variable='ASBGSML', by='IDCNRTRYL', data=timss4g)

# TIMSS G8: Exhibit 2.17 User Guide TIMSS 2011, p. 27
timss.mean(variable='BSBGSML', by='IDCNRTRYL', data=timss8g)

## End(Not run)```
timss.mean.pv

Calculates mean achievement score

Description

timss.mean.pv uses five plausible values to calculate the mean achievement score and its standard error.

Usage

timss.mean.pv(pvlabel = "BSMMAT", by, data, export = FALSE, name = "output", folder = getwd())
timss2015.mean.pv(pvlabel = "BSMMAT", by, data, export = FALSE, name = "output", folder = getwd())

Arguments

pvlabel The label corresponding to the achievement variable, for example, "BSMMAT", for overall math performance in Grade 8.
by The label for the grouping variable, usually the countries (i.e., by="IDCNTRYL"), but could be any other categorical variable.
data An R object, normally a data frame, containing the data from TIMSS.
export A logical value. If TRUE, the output is exported to a file in comma-separated value format (.csv) that can be opened from LibreOffice or Excel.
name The name of the exported file.
folder The folder where the exported file is located.

Value

timss.mean.pv returns a data frame with the mean values and standard errors.

See Also

pirls.mean.pv, pisa.mean.pv

Examples

## Not run:
# TIMSS G4: Exhibit 1.1 International report TIMSS, p. 40
timss.mean.pv(pvlabel="BSMMAT", by="IDCNTRYL", data=timss4g)

# TIMSS G8: Exhibit 2.8 User Guide TIMSS 2011, p. 18
timss.mean.pv(pvlabel="BSMMAT", by=c("IDCNTRYL", "ITSEX"), data=timss8g)

## End(Not run)
timss.per.pv

Description

Calculates percentiles for plausible values

Usage

```r
timss.per.pv(pvlabel="BSMMAT", by, per, data, export=FALSE, name= "output", folder=getwd())
```

Arguments

- **pvlabel**: The label corresponding to the achievement variable, for example, "BSMMAT", for overall mathematics performance.
- **per**: User-defined percentiles (e.g., `per = c(5, 10, 25, 75, 90, 95)`).
- **by**: The label of the categorical grouping variable (e.g., `by="IDCNTRYL"`) or variables (e.g., `by=c("IDCNTRYL", "ITSEX")`).
- **data**: An R object, normally a data frame, containing the data from TIMSS.
- **export**: A logical value. If TRUE, the output is exported to a file in comma-separated value format (.csv) that can be opened from LibreOffice or Excel.
- **name**: The name of the exported file.
- **folder**: The folder where the exported file is located.

Value

`timss.per.pv` returns a data frame with percentiles and associated standard errors. Default weights (e.g., "TOTWGT" in TIMSS) and percentiles are specified in the config parameter.

See Also

- `pisa.per.pv`, `pirls.per.pv`

Examples

```r
## Not run:
# Appendix G.2, p. 484, TIMSS 2011 International Results in Mathematics
timss.per.pv(pvlabel="BSMMAT", per = c(5, 10, 25, 75, 90, 95), by="IDCNTRYL", data=timssg8)
## End(Not run)
```
timss.reg 

Regression analysis

Description

timss.reg performs linear regression analysis (OLS) for an observed dependent variable (NOT for plausible values)

Usage

timss.reg(y, x, by, data, export = FALSE, name = "output", folder = getwd())

Arguments

y 
Label for dependent variable.

x 
Data labels of independent variables.

by 
The label for the grouping variable, usually the countries (i.e., by="IDCNTRYL"), but could be any other categorical variable.

data 
An R object, normally a data frame, containing the data from TIMSS.

export 
A logical value. If TRUE, the output is exported to a file in comma-separated value format (.csv) that can be opened from LibreOffice or Excel.

name 
The name of the exported file.

folder 
The folder where the exported file is located.

Value

timss.reg prints a data.frame with regression results (i.e., coefficients, standard errors, t-values, R-squared) and stores different regression output including residuals and replicate coefficients in a list object of class "intsvy.reg".

See Also

pirls.reg

Examples

## Not run:
timss.reg(y="BSDAGE", x="ITSEX", by="IDCNTRYL", data=timss8g)

## End(Not run)
timss.reg.pv performs linear regression analysis (OLS) with plausible values and replicate weights.

Usage

timss.reg.pv(x, pvlabel = "BSMMAT", by, data, std=FALSE, export = FALSE, name = "output", folder = getwd())
timss2015.reg.pv(x, pvlabel = "BSMMAT", by, data, std=FALSE, export = FALSE, name = "output", folder = getwd())

Arguments

x                Data labels of independent variables.
pvlabel          The label corresponding to the achievement variable, for example, "BSMMAT", for overall math performance in Grade 8.
by               The label for the grouping variable, usually the countries (i.e., by="IDCNTRYL"), but could be any other categorical variable.
data             An R object, normally a data frame, containing the data from TIMSS.
std              A logical value. If TRUE standardised regression coefficients are calculated.
export           A logical value. If TRUE, the output is exported to a file in comma-separated value format (.csv) that can be opened from LibreOffice or Excel.
name             The name of the exported file.
folder           The folder where the exported file is located.

Value

timss.reg.pv prints a data.frame with regression results (i.e., coefficients, standard errors, t-values, R-squared) and stores different regression output including residuals, replicate coefficients, variance within and between, and the regression data.frame in a list object of class "intsrvy.reg".

See Also

pirls.reg.pv, pisa.reg.pv

Examples

## Not run:
# TIMSS G8: Exhibit 2.11, User Guide TIMSS 2011, p.21
timss8g$SEX[ timss8g$ITSEX=="BOY"]=1
timss8g$SEX[ timss8g$ITSEX=="GIRL"]=0
timss.reg.pv(pvlabel="BSMMAT", by=c("IDCNTRYL"), x="SEX", data=timss8g)

## End(Not run)
timss.rho

Correlation matrix

Description

timss.rho produces a correlations matrix for observed variables (NOT for plausible values)

Usage

timss.rho(variables, by, data,
export = FALSE, name = "output", folder = getwd())

Arguments

<table>
<thead>
<tr>
<th>Argument</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>variables</td>
<td>Data labels for the variables in the correlation matrix.</td>
</tr>
<tr>
<td>by</td>
<td>The label for the grouping variable, usually the countries (i.e., by=&quot;IDCNTRYL&quot;), but could be any other categorical variable.</td>
</tr>
<tr>
<td>data</td>
<td>An R object, normally a data frame, containing the data from TIMSS.</td>
</tr>
<tr>
<td>export</td>
<td>A logical value. If TRUE, the output is exported to a file in comma-separated value format (.csv) that can be opened from LibreOffice or Excel.</td>
</tr>
<tr>
<td>name</td>
<td>The name of the exported file.</td>
</tr>
<tr>
<td>folder</td>
<td>The folder where the exported file is located.</td>
</tr>
</tbody>
</table>

Value

timss.rho returns a matrix including correlation and standard error values.

See Also

pirls.rho, pirls.rho.pv, timss.rho.pv

Examples

```r
## Not run:
timss.rho(variables=c("BSMMAT01", "BSDGEDUP"), data=timss)

## End(Not run)
```
timss.rho.pv

Two-way weighted correlation with plausible values

Description

timss.rho.pv calculates the correlation and standard error among two achievement variables each based on 5 plausible values or one achievement variable and an observed variable (i.e., with observed scores rather than plausible values).

Usage

timss.rho.pv(variable, pvlabels, by, 
  data, export = FALSE, name = "output", folder = getwd())

Arguments

  variable A data label for the observed variable
  pvlabels One or two labels describing the achievement variables.
  by The label for the grouping variable, usually the countries (i.e., by="IDCNTRYL"), but could be any other categorical variable.
  data An R object, normally a data frame, containing the data from TIMSS.
  export A logical value. If TRUE, the output is exported to a file in comma-separated value format (.csv) that can be opened from LibreOffice or Excel.
  name The name of the exported file.
  folder The folder where the exported file is located.

Value

timss.rho.pv returns a matrix with correlations and standard errors.

See Also

  pirls.rho.pv, pirls.rho, timss.rho

Examples

  ## Not run:
  timss.rho.pv(variable="BSDGEDUP", pvlabel="BSMMAT", by="IDCNTRYL", data=timss)

  ## End(Not run)
timss.table

Frequency table

Description

timss.table produces a frequency table for a categorical variable printing percentages and standard errors. Information about weight is extracted from \texttt{intsy::pirls_conf}.

Usage

timss.table(variable, by, data, export = FALSE, name = "output", folder = getwd())

Arguments

- \textbf{variable}: The data label with the variable to be analysed.
- \textbf{by}: The label for the grouping variable, usually the countries (i.e., \texttt{by="IDCNTRYL"}), but could be any other categorical variable.
- \textbf{data}: An R object, normally a data frame, containing the data from TIMSS.
- \textbf{export}: A logical value. If TRUE, the output is exported to a file in comma-separated value format (.csv) that can be opened from LibreOffice or Excel.
- \textbf{name}: The name of the exported file.
- \textbf{folder}: The folder where the exported file is located.

Value

timss.table returns a data frame with percentages and standard errors.

See Also

pirls.table, pisa.table

Examples

```r
## Not run:

# TIMSS G4: Exhibit 8.1 International Report 2011, p. 330
timss.table(variable="ASDGSLM", by="IDCNTRYL", data=timss4g)

# TIMSS G8: Exhibit 2.19 User Guide TIMSS 2011, p. 29
timss.table(variable="BSDGSLM", by="IDCNTRYL", data=timss8g)

## End(Not run)
```
timssg4.select.merge  

Select and merge data

Description

timssg4.select.merge selects and merges data from TIMSS G4. Achievement and weight variables (all of them) are selected by default.

Usage

timssg4.select.merge(folder = getwd(), countries, student = c(), home, school, teacher)

Arguments

folder  
Directory path where the data are located. The data could be organized within folders but it should not be duplicated.

countries  
The selected countries, supplied with the abbreviation (e.g., countries=c("AUT", "BGR") or codes (countries=c(40, 100)). If no countries are selected, all are selected.

student  
The data labels for the selected student variables.

home  
The data labels for the selected home background variables.

school  
The data labels for the selected school variables.

teacher  
The data labels for the selected teacher variables.

Value

timssg4.select.merge returns a data frame with the selected data from TIMSS G4.

See Also

timssg8.select.merge, pirls.select.merge, pisa.select.merge

Examples

```r
## Not run:
timssg4g <- timssg4.select.merge(folder=getwd(),
    countries=c("AUS", "BHR", "ARM", "CHL"),
    student =c("ITSEX", "ASDAGE", "ASBGSLM", "ASDGSLM"),
    home = c("ASDHEDUP", "ASDHENA"),
    school =c("ACDG03", "ACDGENS")

## End(Not run)
```
timssg4.var.label

Data labels

Description

timssg4.var.labels prints and saves variable labels and names of participating countries in a text file

Usage

timssg4.var.label(folder = getwd(), name = "Variable labels", output = getwd())

Arguments

folder Directory path where the TIMSS G4 data are located. The data could be organized within folders but it should not be duplicated.
name Name of output file.
output Folder where output file is located.

Value

timssg4.var.label returns a list with variable labels for the student, home, school, and teacher data.

See Also

timssg8.var.label, pirls.var.label, pisa.var.label

Examples

# Not run:
timssg4.var.label(folder= getwd())

# End(Not run)

timssg8.select.merge

Select and merge data

Description

timssg8.select.merge selects and merges data from TIMSS G8.

Usage

timssg8.select.merge(folder = getwd(), countries, student = c(), school, math.teacher, science.teacher)
Arguments

folder: Directory path where the data are located. The data could be organized within folders but it should not be duplicated.

countries: The selected countries, supplied with the abbreviation (e.g., countries=c("AUT", "BGR") or codes (countries=c(40, 100)). If no countries are selected, all are selected.

student: The data labels for the selected student variables.

school: The data labels for the selected school variables.

math.teacher: The data labels for the selected math teacher variables.

science.teacher: The data labels for the selected science teacher variables.

Value

timssg8.select.merge returns a data frame with the selected data from TIMSS G8.

See Also

timssg4.select.merge, pirls.select.merge, pisa.select.merge

Examples

## Not run:
timss8g <- timssg8.select.merge(folder=getwd(),
   countries=c("AUS", "BHR", "ARM", "CHL"),
   student =c("BSDGESP", "ITSEX", "BSDAGE", "BSBGSML", "BSDGSLM"),
   school =c("BCBGPAS", "BCDGB83"))

## End(Not run)

---

### timssg8.var.label

**Data labels**

Description

timssg8.var.labels prints and saves variable labels and names of participating countries in a text file

Usage

timssg8.var.label(folder = getwd(), name = "Variable labels", output = getwd())

Arguments

folder: Directory path where the TIMSS G8 data are located. The data could be organized within folders but it should not be duplicated.

name: Name of output file.

output: Folder where output file is located.
**Value**

`timssg8.var.label` returns a list with variable labels for the student, home, school, and teacher data.

**See Also**

`timssg4.var.label`, `pirls.var.label`, `pisa.var.label`

**Examples**

```r
## Not run:
timssg8.var.label(folder= getwd())

## End(Not run)
```
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