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).
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intsvy-package ......................................................... 3
configs .............................................................. 4
intsvy.ben.pv ........................................................... 4
intsvy.config .......................................................... 5
intsvy.log ............................................................. 7
intsvy.log.pv ........................................................... 8
intsvy.mean ............................................................ 9
intsvy.mean.pv .......................................................... 10
Description

Intsvy allows useRs to work with international assessment data (e.g., TIMSS, PIRLS, PISA, ICILS, and PIAAC). 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).

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References

PISA, PIAAC, PIRLS, and TIMSS Technical Reports
Intsvy.ben.pv

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(pvnames, by, cutoff, data, atlevel=FALSE, export = FALSE, name = "output", folder = getwd(), config)

Arguments

pvnames 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.
atlevel A logical value. If TRUE, percentages at each level are calculated. Otherwise (FALSE), percentages at or above levels are reported.
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

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

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=pisa, atlevel = TRUE)
intsvy.ben.pv(pvnames="MATH", by="CNT", data=pisa, atlevel= TRUE, config=pisa_conf)

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

timss.ben.pv(pvlabel="ASMMAT", by="IDCNTRYL", data=timss4)
intsvy.ben.pv(pvnames="ASMMAT", by="IDCNTRYL", data=timss4, config=timss4_conf)
```

## End(Not run)

### intsvy.config

Config files for intsvy studies

Description

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

Usage

```r
intsvy.config(variables.pvlabelpref,
variables.pvlabelsuff,
variables.weight,
variables.jackknifeZone,
variables.jackknifeRep,
parameters.cutoffs,
parameters.cutoffs2,
parameters.percentiles,
parameters.weights,
parameters.PVreps,
parameters.varpv1,
```

```r
```
input.type, 
input.prefixes, 
input.student, 
input.student_colnames1, 
input.student_colnames2, 
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.jackknifeRep
Names of variables that are used for jack-knife replicates.

input.type, input.prefixes, input.student, input.student_colnames1, input.student_colnames2, 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
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)
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="IDCNRTRYL"), 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.  
nname  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:

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

pisa$LATE[!pisa$ST08Q01=="None"] <- 1
pisa$LATE[pisa$ST08Q01=="None"] <- 0
pisa.log(y="SKIP", x="LATE", by="IDCNTRYL", data = pisa)

## End(Not run)

**Description**

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

**Usage**

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

**Arguments**

- **pvnames**: 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**

intsvy.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. Weights, e.g. "TOTWGT" for PIRLS, are defined in the config argument.

**See Also**

pisa.log.pv, pirls.log.pv, timss.log.pv
Calculates mean of variable

```r
intsvy.mean
```

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

### Usage

```r
intsvy.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.

### Value
intsvy.mean returns a data frame with means and standard errors.

### See Also
- pisa.mean
- timss.mean
- pirls.mean
intsvy.mean.pv

**Calculates mean achievement score**

**Description**

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 = "ASRREA0", by= "IDCNTRYL",
data=pirls, config=pirls_conf)

intsvy.mean.pv(pvnames = "MATH", by="CNT", data=pisa,
        config=pisa_conf)

intsvy.mean.pv(pvnames = "BSMMAT0", 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)
```

```r
intsvy.per.pv

Calculates percentiles
```

Description

Calculates percentiles for plausible values

Usage

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

Arguments

- **pvnames**: 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 vari-
    ables (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.

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.
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.
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.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 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)
```

---

### intsvy.reg.pv

Regression analysis with plausible values

Description

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

Usage

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

Arguments

- **pvnames**: 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.
- **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.rho prints a correlation matrix for observed variables (NOT for plausible values).

**Usage**

```r
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.
**Value**

`intsyrho.pv` 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)

## End(Not run)
```

---

**Description**

`intsyrho.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
intsyrho.pv(variable, pvnames, by, data, export=FALSE, name= "output", folder=getwd(), config)
```

**Arguments**

- **variable**: A data label for the observed variable.
- **pvnames**: 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**

`intsyrho.pv` returns a matrix including correlation and standard error values.
### 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", "ASDHELA", "ASBHELA"),
school= c("ACDGDAS", "ACDGCMP", "ACDG03"),
config = pirls_conf)

pirls <- intsvy.select.merge(folder= getwd(),
countries= 36, 40, 31, 957,
student= c("ITSEX", "ASDAGE", "ASBGSMR"),
home= c("ASDHEDUP", "ASDHOCCP", "ASDHELA", "ASBHELA"),
school= c("ACDGDAS", "ACDGCMP", "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("BCBGDAS", "BCDG03"), 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("CLSIZE", "TCSHORT"),
countries = c("HKG", "USA", "SWE", "POL", "PER"))
```

## End(Not run)

### intsvy.table

**Frequency table**

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

#### Usage

```
intsvy.table(variable, by, data, config)
```
intsvy.var.label

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

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

See Also

timss.table, pirls.table

Examples

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

---

intsvy.var.label

**Data labels**

**Description**

intsvy.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**

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

**Arguments**

- **folder**: 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.
**piaac.ben.pv**

Folder where the output 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.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, atlevel, export=FALSE,
             name= "output", folder=getwd())
```

**Arguments**

<table>
<thead>
<tr>
<th>pvlabel</th>
<th>The label corresponding to the achievement variable, for example, &quot;LIT&quot;, for overall reading performance.</th>
</tr>
</thead>
<tbody>
<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>atlevel</td>
<td>A logical value. If TRUE, percentages at each level are calculated. Otherwise (FALSE), percentages at or above levels are reported.</td>
</tr>
</tbody>
</table>
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

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.
piaac.mean.pv

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 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)

---

piaac.mean.pv

Calculates mean achievement score for PIAAC data

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

Examples

```r
# install pbiecek/PIAAC package from github to have access to piaac data
piaac.mean.pv(pvlabel = "LIT", by = "CNTRYID", data = piaac)
piaac.mean.pv(pvlabel = "NUM", by=c("CNTRYID", "GENDER_R"), data=piaac)
```

piaac.reg

Regression analysis for PIAAC

Description

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

Usage

```r
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().
piaac.reg.pv

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)
```

---

**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 "intsy.reg" with overloaded function plot().

**See Also**

pisa.reg.pv, timss.reg.pv, pirls.reg.pv
### 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.reg.pv(pvlabel="LIT", x="GENDER_R", by = "CNTRYID", data=piaac)
## End(Not run)
```

```r
# install pbiecek/PIAAC package from github to have access to piaac data
piaac.table(variable="I_Q06A", by="CNTRYID", data=piaac)
piaac.table(variable="GENDER_R", by="CNTRYID", data=piaac)
## End(Not run)
```
pirls.ben.pv

PIRLS international benchmarks

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, atlevel=FALSE, 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;ASRREA&quot;, for overall reading performance.</td>
</tr>
<tr>
<td>cutoff</td>
<td>The cut-off points for the assessment benchmarks (e.g., cutoff = c(400, 475, 550, 625)).</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 PIRLS.</td>
</tr>
<tr>
<td>atlevel</td>
<td>A logical value. If TRUE, percentages at each level are calculated. Otherwise (FALSE), percentages at or above levels are reported.</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

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)
pirls.log

**Logistic regression analysis**

**Description**

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

**Usage**

```r
call(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 "intsivy.reg".

**See Also**

- `timss.log`
- `pisa.log`

**Examples**

```r
## Not run:
pisa$SKIP[!(pisa$ST09Q01 == "None" & pisa$ST115Q01 == "None")]<-1
pisa$SKIP[pisa$ST09Q01 == "None" & pisa$ST115Q01 == "None"]<-0

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

pisa.log(y="SKIP", x="LATE", by="IDCNTRYL", data = pisa)
## End(Not run)
```
Description

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

Usage

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

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

Examples

## Not run:
pirls.mean(variable='ASBHELA', by= 'IDCNTRYL', data=pirls)

## End(Not run)
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())
```

**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.mean.pv(pvlabel="ASRREA", by= "IDCNTRYL", data=pirls)
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

```r
## Not run:
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.
nname  The name of the exported file.
ffolder  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 "intsvy.reg".

See Also

timss.reg

Examples

## Not run:

# 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)

---

**pirls.reg.pv**

*Regression analysis with plausible values*

**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

```r
## Not run:
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**

```r
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.pv, timss.rho.pv

**Examples**

```r
## Not run:
pirls.rho(variables=c("ASRREA01", "ASDAGE"), by="IDCNTRYL", data=pirls)
## End(Not run)
```
pirls.rho.pv \( \text{Two-way weighted correlation with plausible values} \)

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

\[
\text{pirls.rho.pv}(\text{variable, pvlabel, by, data, export = FALSE, name = "output", folder = getwd()})
\]

Arguments

- **variable**: A data label for the observed variable (e.g., variable="ASDAGE")
- **pvlabel**: 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:
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

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

## 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("ACDGDAS", "ACDGCMPS", "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 \texttt{intsvy::pirls\_conf}.

**Usage**

\begin{verbatim}
pirls.table(variable, by, data, export = FALSE, name = "output", folder = getwd())
\end{verbatim}

**Arguments**

- **variable**: The data label with the variable to be analysed.
- **by**: The label for the grouping variable, usually the countries (i.e., by=\texttt{"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**

\texttt{timss.table, pisa.table}

**Examples**

\begin{verbatim}
## Not run:
pirls.table(variable="ASDHELA", by="IDCNTRYL", data=pirls)
## End(Not run)
\end{verbatim}
**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**

- `folder`: Directory path where the PIRLS 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**

`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**

```r
## Not run:
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.

**Usage**

```r
pisa.ben.pv(pvlabel, by, cutoff, data, atlevel=FALSE, 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.

atlevel  A logical value. If TRUE, percentages at each level are calculated. Otherwise (FALSE), percentages at or above levels are reported.

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:
pisa.ben.pv(pvlabel="MATH", by="IDCNTRYL", atlevel=TRUE, data=pisa)

## End(Not run)
```

pisalog 

Logistic regression analysis

Description

pisa.log performs logistic regression analysis (OLS) for an observed depedent variable (NOT for plausible values)

Usage

```r
pisa.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 "intsvy.reg".

See Also

pirls.log, timss.log

Examples

```r
## Not run:
pisa$SKIP[!pisa$ST09Q01 == "None" & pisa$ST115Q01 == "None"] <- 1
pisa$SKIP[pisa$ST09Q01 == "None" & pisa$ST115Q01 == "None"] <- 0

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

pisa.log(y="SKIP", x="LATE", by="IDCNTRYL", data = pisa)
## End(Not run)
```

pisa.log.pv

Logistic regression analysis with plausible values

Description

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

Usage

```r
pisa.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.

**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)
```

---

**Description**

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

**Usage**

```r
pisa.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

## Not run:
pisa.mean(variable="ESCS", by="IDCNTRYL", data=pisa)
pisa.mean(variable="PARED", by="IDCNTRYL", data=pisa)
pisa.mean(variable="BELONG", by="IDCNTRYL", data=pisa)
pisa.mean(variable="BELONG", by=c("IDCNTRYL", "ST04Q01"), data=pisa)

## 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.

Usage

pisa.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.

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

Examples

```r
## Not run:
pisa.mean.pv(pvlabel = "MATH", by = "IDCNTRYL", data = pisa)
pisa.mean.pv(pvlabel = "MATH", by = c("IDCNTRYL", "ST04Q01"), data = pisa)
pisa.mean.pv(pvlabel = "READ", by = "IDCNTRYL", data = pisa)
## End(Not run)
```

pisa.per.pv | PISA percentiles
--- | ---

Description

Calculates percentiles for plausible values.

Usage

```r
pisa.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:
pisa.per.pv(pvlabel="MATH", per=c(10, 25, 75, 90), by="IDCNTRYL", data=pisa)
## End(Not run)
```

Description

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

Usage

```r
pisa.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 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.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:
pisa.reg(y="BELONG", x="ST04Q01", by="IDCNTRYL", data=pisa)
## 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.

Usage

pisa.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 "intsvy.reg".

See Also

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

Examples

```r
## Not run:
pisa.reg.pv(pvlabel="MATH", x= "ST04Q01", by = "IDCNTRYL", data=pisa)
## End(Not run)
```

pisa.rho

**Correlation matrix**

Description

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

Usage

```r
pisa.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.

See Also

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

Examples

## Not run:
pisa.rho(variables=c("COGACT", "TCHBEHTD", "TCHBEHSO", "CLSMAN" ), by="IDCNTRYL", data=pisa)

## End(Not run)

pisa.select.merge  Select and merge data

Description

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

Usage

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).
Value

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

See Also

timssg4.select.merge, timssg8.select.merge, pirls.select.merge

Examples

```r
## Not run:
pisa <- pisa.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.

**Usage**

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

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>variable</td>
<td>The data label with the variable to be analysed.</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 PISA.</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

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

### See Also

timss.table, pirls.table

### Examples

```r
## Not run:
pisa.table(variable="ST01Q01", by="IDCNTRYL", data=pisa)
pisa.table(variable="ST08Q01", by="IDCNTRYL", data=pisa)
## End(Not run)
```

---

### Data labels

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

#### Usage

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

#### Arguments

<table>
<thead>
<tr>
<th>Name</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>
</tbody>
</table>
plot.intsvy.mean

School file name if ‘folder’ is provided, otherwise full path name of school dataset.

name

Name of output file.

output

Folder where output file is located.

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

Examples

## Not run:
pisa.var.label(folder=getwd(), school.file="INT_SCQ12_DEC03.sav",
student.file="INT_STU12_DEC03.sav", parent.file="INT_PAQ12_DEC03.sav")

## End(Not run)

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, pi-
aac.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.
plot.intsvy.reg

Graphical representation of regression models in groups

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)
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

```r
# 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.levels + 1)/2. If n.levels is odd then bars are centered around the beginning of the selected segment. If n.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.

See Also

plot.intsvy.mean, plot.intsvy.reg

Examples

```r
## 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 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, atlevel=FALSE, 
export = FALSE, name = "output", folder = getwd())
```

**Arguments**

- **pvlabel**: The label corresponding to the achievement variable, for example, "BSMMAT", for overall math 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 TIMSS.
- **atlevel**: A logical value. If TRUE, percentages at each level are calculated. Otherwise (FALSE), percentages at or above levels are reported.
- **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.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**

```r
## Not run:
timss.ben.pv(pvlabel="BSMMAT", by="IDCNTRYL", cutoff = c(400, 475, 550, 625), data=timss8g)
timss.ben.pv(pvlabel="ASMMAT", by="IDCNTRYL", data=timss4g)
## End(Not run)
```
**timss.log**

**Logistic regression analysis**

**Description**

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

**Usage**

```r
timss.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**

`timss.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**

`pirls.log`, `pisa.log`

**Examples**

```r
## Not run:
pisa$SKIP[!(pisa$ST09Q01 == "None" & pisa$ST115Q01 == "None")]
<- 1
pisa$SKIP[pisa$ST09Q01 == "None" & pisa$ST115Q01 == "None"]
<- 0

pisa$LATE[!pisa$ST09Q01=="None"]
<- 1
pisa$LATE[pisa$ST08Q01=="None"]
<- 0

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

## 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

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

## 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)
timss.mean  

Calculates mean of variable

Description

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

Usage

```
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="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 returns a data frame with means and standard errors.

See Also

pirls.mean, pisa.mean

Examples

```r
## Not run:
timss.mean(variable='ASBGSLM', by='IDCNTRYL', data=timss4g)
timss.mean(variable='BSBGSLM', by='IDCNTRYL', data=timss8g)
## End(Not run)
```
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())

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.mean.pv(pvlabel="ASMMAT", by="IDCNTRYL", data=timss4g)
timss.mean.pv(pvlabel="BSMMAT", by=c("IDCNTRYL", "ITSEX"), data=timss8g)

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

TIMSS percentiles

Description

Calculates percentiles for plausible values

Usage

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

## Not run:
timss.per.pv(pvlabel="BSMMAT", per = c(5, 10, 25, 50, 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.

collection 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

Regression analysis with plausible values

Description

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())
```

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 "intsvy.reg".

See Also

pirls.reg.pv, pisa.reg.pv

Examples

```r
# Not run:
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)
Correlation matrix

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

variables Data labels for the variables in the correlation matrix.
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 returns a matrix including correlation and standard error values.

See Also

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

Examples

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

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

**Arguments**

- `variable`: A data label for the observed variable.
- `pvlabel`: 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**

```r
## Not run:
timss.rho.pv(variable="BSDGEDUP", pvlabel="BSMMAT", by="IDCNTRYL", data=timss)
## End(Not run)
```
timss.table produces a frequency table for a categorical variable printing percentages and standard errors. Information about weight is extracted from \texttt{intsvy::pirls\_conf}.

**Usage**

\begin{verbatim}
  timss.table(variable, by, data,
             export = FALSE, name = "output", folder = getwd())
\end{verbatim}

**Arguments**

- **variable**: The data label with the variable to be analysed.
- **by**: The label for the grouping variable, usually the countries (i.e., \texttt{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.table returns a data frame with percentages and standard errors.

**See Also**

pirls.table, pisa.table

**Examples**

```r
  ## Not run:
  timss.table(variable="ASDGSLM", by="IDCNTRYL", data=timss4g)
  timss.table(variable="BSDGSLM", by="IDCNTRYL", data=timss8g)

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

Select and merge data

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

## Not run:
```r
timss4g <- 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

```r
# Not run:
timss8g <- timssg8.select.merge(folder=getwd(),
  countries= c("AUS", "BHR", "ARM", "CHL"),
  student = c("BSDGEDUP", "ITSEX", "BSDAGE", "BSBGSLM", "BSDGSLM"),
  school = c("BCBGDAS", "BCDG03"))
```

## End(Not run)

### timssg8.var.label

**Data labels**

**Description**

timssg8.var.label 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

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

## End(Not run)
Index

* datasets
  
  configs, 4

configs, 4
icils_conf (configs), 4
intsvy (intsvy-package), 3
intsvy-package, 3
intsvy.ben.pv, 4
intsvy.config, 5
intsvy.log, 7
intsvy.log.pv, 8
intsvy.mean, 9
intsvy.mean.pv, 10
intsvy.per.pv, 11
intsvy.reg, 12
intsvy.reg.pv, 13
intsvy.rho, 14
intsvy.rho.pv, 15
intsvy.select.merge, 16
intsvy.table, 17
intsvy.var.label, 18

pasec_conf (configs), 4
piaac.ben.pv, 19
piaac.mean, 20
piaac.mean.pv, 21
piaac.reg, 22
piaac.reg.pv, 23
piaac.table, 24
piaac_conf (configs), 4
pirls.ben.pv, 25
pirls.log, 26
pirls.log.pv, 27
pirls.mean, 28
pirls.mean.pv, 29
pirls.per.pv, 30
pirls.reg, 31
pirls.reg.pv, 32
pirls.rho, 33

pirls.rho.pv, 34
pirls.select.merge, 35
pirls.table, 36
pirls.var.label, 37
pirls_conf (configs), 4
pisa.ben.pv, 37
pisa.log, 38
pisa.log.pv, 39
pisa.mean, 40
pisa.mean.pv, 41
pisa.per.pv, 42
pisa.reg, 43
pisa.reg.pv, 44
pisa.rho, 45
pisa.select.merge, 46
pisa.table, 47
pisa.var.label, 48
pisa_conf (configs), 4
plot.intsvy.mean, 49
plot.intsvy.reg, 50
plot.intsvy.table, 51

timss.ben.pv, 53
timss.log, 54
timss.log.pv, 55
timss.mean, 56
timss.mean.pv, 57
timss.per.pv, 58
timss.reg, 59
timss.reg.pv, 60
timss.rho, 61
timss.rho.pv, 62
timss.table, 63
timss4_conf (configs), 4
timss8_conf (configs), 4
timssg4.select.merge, 64
timssg4.var.label, 65
timssg8.select.merge, 65
timssg8.var.label, 66