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
URL http://users.ox.ac.uk/~educ0279,
https://github.com/eldafani/intsvy
BugReports https://github.com/eldafani/intsvy/issues
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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**: 2.0
- **Date**: 2017-06-14
- **License**: GPL-2

intsuy 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
**intsvy.ben.pv**

**configs**

*Config files for intsvy studies*

**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**

```r
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**

```r
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.
- **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.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

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

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

timss.ben.pv(pvlabel="ASMMAT", by="IDCNTRYL", data=timss4)
intsvy.ben.pv(pvlabel="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 allso allo 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,
input.type,
input.prefixes,
input.student,
input.student_colnames1,
input.student_colnames2,
input.student_pattern,
```


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

**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.

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

`input.type, input.prefixes, input.student, input.student_colnames1, input.student_colnames2, input.teacher, input.teacher_colnames, input.student_ids, input.school_ids, input.type_part, input.cnt_part, base.config = pirls_conf`

**Examples**

```r
## 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**

```r
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.
- **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**

`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**

```r
## Not run:
# Table IV.5.14, p. 457 International Report 2012
pial2$SKIP[(pial2$ST09Q01 == "None" & pial2$ST115Q01 == "None")]<- 1
pial2$SKIP[pial2$ST09Q01 == "None" & pial2$ST115Q01 == "None"] <- 0
pial2$LATE[pial2$ST08Q01=="None"] <- 1
pial2$LATE[pial2$ST08Q01=="None"] <- 0
```
# Logistic regression analysis with plausible values

**Description**

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

**Usage**

```r
intsy.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", "MTSEX")).
- `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.
\texttt{ints\_svy\_mean} \hspace{1cm} \textit{Calculates mean of variable}

\textbf{Value}

\texttt{ints\_svy\_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. "TOTWG\_T" for PIRLS, are defined in the config argument.

\textbf{See Also}

\texttt{pisa\_log\_pv}, \texttt{pirls\_log\_pv}, \texttt{timss\_log\_pv}

\textbf{Examples}

```r
## Not run:
ints\_svy\_log\_pv(pv\_label="MATH", cutoff= 606.99, x="ESCS", by="IDCNTRY\_L",
data=pisa, config=pisa\_conf)
ints\_svy\_log\_pv(pv\_label="BSMM\_AT", cutoff= 550, x="ITSEX", by="IDCNTRY\_L",
data=timss\_8g, config=timss\_8\_conf)
## End(Not run)
```

\textbf{Description}

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

\textbf{Usage}

```r
ints\_svy\_mean(variable, by, data, export = FALSE,
name = "output", folder = getwd(), config)
```

\textbf{Arguments}

- \texttt{variable}\hspace{1cm} The label corresponding to the observed variable, for example, "AGE\_R" for age of respondent.
- \texttt{by}\hspace{1cm} The label for the grouping variable, usually the countries (i.e., by="CNTRYID"), but could be any other categorical variable.
- \texttt{data}\hspace{1cm} An R object, normally a data frame, containing the data from PIAAC.
- \texttt{export}\hspace{1cm} 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.
- \texttt{name}\hspace{1cm} The name of the exported file.
- \texttt{folder}\hspace{1cm} The folder where the exported file is located.
- \texttt{config}\hspace{1cm} 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.mean.pv

Value

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

See Also

pisa.mean, timss.mean, pirls.mean

Examples

## Not run
intsvy.mean(variable="READHOME", by="CNTRYID", data=piaac, config=piaac_conf)
intsvy.mean(variable="PARED", by="IDCNTRYL", data=pisa, config=pisa_conf)
intsvy.mean(variable="BS8GSLM", by='IDCNTRYL', data=timss8g, config=timss8_conf)
intsvy.mean(variable='ASBHELA', by='IDCNTRYL', data=pirls, config=pirls_conf)

## End(Not run)

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

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("ASRREA0",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("BSMMAT0",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.
Value

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

pirls.per.pv(pvlabel="ASRREA", by="IDCNTRYL", data=pirls)
intsy.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)
intsy.per.pv(pvlabel="MATH", by="CNT", data=student2012, config=pisa_conf)

## End(Not run)

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</thead>
<tbody>
<tr>
<td>intsy.reg</td>
<td>Regression analysis without plausible values</td>
</tr>
</tbody>
</table>

Description

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

Usage

intsy.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

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

## 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)

---

**Regression analysis with plausible values**

Description

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

Usage

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="IDCNRTRYL"),
                 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

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.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

```r
## 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 = "CNTRYID", 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

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

Arguments

<table>
<thead>
<tr>
<th>Argument</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>variables</td>
<td>Data labels for the variables in the correlation matrix (e.g., variables=c(&quot;ASRREA01&quot;, &quot;ASDAGE&quot;).</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>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>
<tr>
<td>config</td>
<td>Object with configuration of a given study. Should contain the slot 'prefixes' with prefixes of filenames with the student, home, school, and teacher data.</td>
</tr>
</tbody>
</table>
intsvy.rho.pv

Value

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

See Also

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

Examples

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

### End(Not run)

---

**intsvy.rho.pv**  
*Two-way weighted correlation with plausible values*

**Description**

intsvy.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
intsvy.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**

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

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

Examples

## Not run:
timss.rho.pv(variable="BSDGEDUP", pvlabeled="BSMMAT", by="IDCNTRYYL", 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 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, use.labels=FALSE, 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.
- **use.labels**: logical: convert variables with value labels into R factors with those levels?
- **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("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", "ASDHELA", "ASBHELA"),
school = c("ACDGDA", "ACDGCM", "ACDG03"),
config = pirls_conf)

timss8g <- intsvy.select.merge(folder= getwd(),
countries = c("AUS", "BHR", "ARM", "CHL"),
student = c("BBDGEDUP", "BBDSEX", "BSDAGE", "BSGBGLM", "BSDGSLM"),
school = c("BCBDGDA", "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**

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

`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="STOEQ5", 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

```
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.

output  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

## 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

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

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.

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)

<table>
<thead>
<tr>
<th>piaac.mean.pv</th>
<th>Calculates mean achievement score for PIAAC data</th>
</tr>
</thead>
</table>

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

## Not run:
# 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)

## End(Not run)

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 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**

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 "intsvy.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

```
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
CC not runZ
install pbiecekOpiaac package from github to have access to piaac data
piaac.table(\code{variable}="I.Q06A", \code{by}="CNTRYID", data=piaac)
piaac.table(\code{variable}="GENDER_R", \code{by}="CNTRYID", data=piaac)

CC endHnot runI
```

---

**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

```r
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

## 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

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.
pirls.log.pv

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 "intsyv.reg".

See Also

timss.log, pisa.log

Examples

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

pirls.log.pv
```

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", "BSBGSCLM"), by="IDCNTRYL", data=timss8g)
tisvy.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: 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

    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

## 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

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:
# Appendix F.1, p. 286, PIRLS 2011 International Results in Reading
pirls.per.pv(pvlabel="ASRREA", per = c(5, 10, 25, 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**

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

Regression analysis with plausible values

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: 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.pv, timss.rho.pv

Examples

## 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

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

## 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  \hspace{1cm} 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, use.labels=FALSE)

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.
use.labels  logical: convert variables with value labels into R factors with those levels?

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", "ACDGCMP", "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**

```
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**

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

```r
## 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

- **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. Use the pisa2015.ben.pv() for data from PISA 2015 study.

Usage

```r
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)

pisa.log

Logistic regression analysis

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 "intsrvy.reg".

See Also

pirls.log, timss.log

Examples

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

pisa2$SKIP[!(pisa2$ST09Q01 == "None" & pisa2$ST115Q01 == "None")]<-1
pisa2$SKIP[pisa2$ST09Q01 == "None" & pisa2$ST115Q01 == "None"]<-0

pisa2$LATE[!(pisa2$ST08Q01 == "None")]<-1
pisa2$LATE[pisa2$ST08Q01 == "None"]<-0

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

# 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)
```
pisa.log.pv  

Logistic regression analysis with plausible values

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

```r
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.

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", "ST04Q01"), data=pisa)

# PISA 2015
```
pisa.mean.pv

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

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.

See Also

timss.mean.pv, pirls.mean.pv, piaac.mean.pv

Examples

## 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.per.pv

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 = "IDCNTRYL", data = pisa)
pisa2015.per.pv(pvlabel = "READ", by = "CNT", data = stud2015)
```

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)
```

## Regression analysis

### Description

`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

- `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**

```r
## 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)
```

**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**

```r
pisa.reg.pv(x, pvlabel = "READ", by, data,
export = FALSE, name = "output", folder = getwd(), std=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 "intsvy.reg".
pisa.rho

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

Examples
## 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)

### pisa.rho  Correlation matrix

**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**

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.

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)
```

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

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

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.
- `use.value.labels`: logical, if FALSE value labels not imported but more efficient.

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", "ST04001", "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.

See Also

timss.table, pirls.table
Examples

```r
## 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="ST04D01T", 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**

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

**Arguments**

- `folder` (required argument)
  - Directory path where the PISA data are located, if all the data are located in the same folder.
- `student.file` (required argument)
  - Student file name if 'folder' is provided, otherwise full path name of student dataset.
- `parent.file` (required argument)
  - Parent file name if 'folder' is provided, otherwise full path name of parent dataset.
- `school.file` (required argument)
  - School file name if 'folder' is provided, otherwise full path name of school dataset.
- `name` (required argument)
  - Name of output file.
- `output` (required argument)
  - 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
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

```r
## 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)
```
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)

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

See Also

plot.intsvy.table, plot.intsvy.mean

Examples

## Not run:
# Independent variables
x.vars <- c("ESCS", "COGACT", "TCHBEHTD", "TCHBEHSO")
# Model estimation
my.mod <- pisa.reg.pv(pvlabel="MATH", x=x.vars, by="IDCNTRYL", data=pisa2)
# Plot
plot(gen.mod, vars = c("COGACT", "TCHBEHTD", "TCHBEHSO"), sort=TRUE)

## End(Not run)
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)

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

# age distribution within countries
plot(ptableC, stacked=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)

## 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,
extport = 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.
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.
**timss.log**

**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 G4: Exhibit 2.2 International Report TIMSS 2011, p. 90
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 "intsy.reg".

See Also

pirls.log, pisa.log

Examples

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

pisa12$SKIP[(pisa12$ST0Q01 == "None" & pisa12$ST1Q01 == "None")][-1] <- 1
pisa12$SKIP[pisa12$ST0Q01 == "None" & pisa12$ST1Q01 == "None"][-0]

pisa12$LATE[(pisa12$ST0Q01 == "None")][-1]
pisa12$LATE[pisa12$ST0Q01 == "None"][-0]

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

# from PISA2012lite

student2012$SKIP[(student2012$ST0Q01 == "None" & student2012$ST1Q01 == 1)]<-1
student2012$SKIP[student2012$ST0Q01 == "None" & student2012$ST1Q01 == 1][-0]

student2012$LATE[(student2012$ST0Q01 == "None")][-1]
student2012$LATE[student2012$ST0Q01 == "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

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

- `pvalabel`: 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(pvalabel="BSMMAT", cutoff= 550, x=c("ITSEX", "BSBGSLM"), by="IDCNTRYL", data=timss8g)
intsvy.log.pv(pvalabel="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="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 G4: Exhibit 8.1 International Report TIMSS 2011, p. 330
timss.mean(variable='ASBGSLM', by='IDCNTRYL', data=timss4g)

# TIMSS G8: Exhibit 2.17 User Guide TIMSS 2011, p. 27
timss.mean(variable='BSBGSLM', by='IDCNTRYL', 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

```r
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

```r
## 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  
**TIMSS percentiles**

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

pisaper.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

```r
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)

---

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.
- **pvlable**: 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:
# TIMSS GB: Exhibit 2.11, User Guide TIMSS 2011, p.21
timssg$SEX[timssg$ITSEX=="BOY"]=1
timssg$SEX[timssg$ITSEX=="GIRL"]=0
timss.reg.pv(pvlable="BSMMAT", by=c("IDCNTRYL"), x="SEX", data=timssg)
## End(Not run)
```

timss.rho

**Correlation matrix**

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

Usage

```r
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

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

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

```r
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

```r
## 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 `intsvy::pirls_conf`.

Usage

timss.table(variable, by, data, export = FALSE, name = "output", folder = getwd())
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, use.labels=FALSE)
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.
use.labels logical: convert variables with value labels into R factors with those levels?

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:
timssg4 <- 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 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

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

```r
## 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, use.labels=FALSE)

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.

use.labels logical: convert variables with value labels into R factors with those levels?
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
timssg8 <- timssg8.select.merge(folder=getwd(),
  countries=c("AUS", "BHR", "ARM", "CHL"),
  student =c("BSDGEDU", "ITSEX", "BSDAGE", "BBSGSLM", "BBDGSLM"),
  school =c("BCBDGAS", "BCDG03")

## 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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