

# 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://danielcaro.net/r-intsvy/>,  
<https://github.com/eldafani/intsvy>

**BugReports** <https://github.com/eldafani/intsvy/issues>

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intsvy-package                    *International Assessment Data Manager*

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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: 2.4  
Date: 2019-05-10  
License: GPL-2

intsvy 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

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configs	<i>Config files for intsvy studies</i>
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---

### 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	<i>Performance international benchmarks and proficiency levels</i>
---------------	--

---

### Description

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

### Usage

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

### Arguments

pvlabel	The label corresponding to the achievement variable, for example, "ASRREA", for overall reading performance.
cutoff	The cut-off points for the assessment benchmarks (e.g., cutoff= c(357.77, 420.07, 482.38, 544.68, 606.99, 669.30)).
by	The label for the grouping variable, usually the countries (i.e., by="IDCOUNTRYL"), 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 also allo to apply intsvy functions to new studies that are similar to PIRLS, TIMSS, PISA, PIAAC, ICILS.

**Usage**

```
intsvy.config(variables.pvlabelpref,
             variables.pvlabelsuff,
             variables.weight,
             variables.jackknifeZone,
             variables.jackknifeRep,
             parameters.cutoffs,
             parameters.cutoffs2,
             parameters.percentiles,
             parameters.weights,
             parameters.PVreps,
             parameters.varpv1,
             input.type,
             input.prefixes,
             input.student,
             input.student_colnames1,
             input.student_colnames2,
```

```

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 benchmar or for logistic regression.

parameters.percentiles, parameters.PVreps

Other parameters for weighting schemes, like number of PVs.

parameters.varpv1

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

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

input.type, input.prefixes, input.student, input.student\_colnames1, input.student\_colnames2, input.  
Parameters to correctly read data from files downloaded from iea.nl website.

base.config Base config structure, either pirls\_conf, pisa\_conf, piaac\_conf, timss4\_conf, timss8\_conf, icils\_conf.

### Value

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

### Examples

```

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

icils_conf

## End(Not run)

```

intsvy.log

*Logistic regression analysis***Description**

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

**Usage**

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

**Arguments**

y	Label for dependent variable
x	Data labels of independent variables (e.g., x = c("ASDHEHLA", "ITSEX") ).
by	The label for the grouping variable, usually the countries (i.e., by="IDCNTRYL"), but could be any other categorical variable.
data	An R object, normally a data frame, containing the data from PIRLS.
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**

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

pisa12$SKIP[!(pisa12$ST09Q01 == "None" & pisa12$ST115Q01 == "None")] <- 1
pisa12$SKIP[pisa12$ST09Q01 == "None" & pisa12$ST115Q01 == "None"] <- 0

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

```

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

# 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)

```

---

intsvy.log.pv

*Logistic regression analysis with plausible values*


---

## Description

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

## Usage

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

## Arguments

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



**Value**

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

**Examples**

```
## Not run:
intsvy.log.pv(pvlabel="MATH", cutoff= 606.99, x="ESCS", by="IDCNTRYL",
data=pisa, config=pisa_conf)
intsvy.log.pv(pvlabel="BSMMAT", cutoff= 550, x="ITSEX", by="IDCNTRYL",
data=timss8g, config=timss8_conf)

## End(Not run)
```

---

intsvy.mean	<i>Calculates mean of variable</i>
-------------	------------------------------------

---

**Description**

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

**Usage**

```
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

**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="BSBGSLM", 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**

```
## 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="CNTYID", data=piaac,
  config=piaac_conf)

## End(Not run)
```

---

intsvy.per.pv                      *Calculates percentiles*

---

**Description**

Calculates percentiles for plausible values

**Usage**

```
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**

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

**See Also**

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

**Examples**

```
## Not run:
timss.per.pv(pvlabel="BSMMAT", per = c(5, 10, 25, 50, 75, 90, 95), by="IDCNTRYL", data=timss8)
intsvy.per.pv(pvlabel="BSMMAT", by="IDCNTRYL", data=timss8, config=timss8_conf)

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

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

## End(Not run)
```

---

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**

```
## Not run:
# install pbierek/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**

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

**Arguments**

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

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**

```
## 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	<i>Correlation matrix</i>
------------	---------------------------

---

**Description**

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

**Usage**

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

**Arguments**

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

**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:
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**

```
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", pvlabel="BSMMAT", by="IDCNTRYL", data=timss)

## End(Not run)
```

---

intsvy.select.merge    *Select and merge data*

---

**Description**

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

**Usage**

```
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**

```
## 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= c(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***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**

```
## 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	<i>Data labels</i>
------------------	--------------------

---

**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 <a href="http://rms.iea-dpc.org/">http://rms.iea-dpc.org/</a> .
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())
```

**Arguments**

pvlabel The label corresponding to the achievement variable, for example, "LIT", for overall reading performance.  
 by The label for the grouping variable, usually the countries (i.e., by="CNTRYID"), but could be any other categorical variable.  
 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)).  
 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.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, pisa.ben.pv

**Examples**

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

## End(Not run)
```

---

piaac.mean

*Calculates mean of variable in PIAAC data*

---

**Description**

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

**Usage**

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

**Arguments**

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

**Value**

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

**See Also**

pisa.mean, timss.mean, pirls.mean

**Examples**

```
## Not run:
# install pbierek/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

```
## 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**

```
## Not run:
# install pbierek/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**

```
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**

```
## Not run:
# install pbiemek/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	<i>Frequency table</i>
-------------	------------------------

---

**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**

```
## Not run:
# install pbiemek/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, 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: Exhibit 2.14 User Guide PIRLS 2011, p. 24
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.
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 "intsvy.reg".

**See Also**

timss.log, pisa.log

**Examples**

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

pisa12$SKIP[!(pisa12$ST09Q01 == "None" & pisa12$ST115Q01 == "None")] <- 1
pisa12$SKIP[pisa12$ST09Q01 == "None" & pisa12$ST115Q01 == "None"] <- 0

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

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

```
# 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

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

## End(Not run)
```

---

pirls.log.pv

*Logistic regression analysis with plausible values*


---

## 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**

```
## 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)
```

---

pirls.mean	<i>Calculates mean of variable</i>
------------	------------------------------------

---

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

**Arguments**

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

**Value**

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

**See Also**

timss.mean.pv, pisa.mean.pv

**Examples**

```
## 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**

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

## End(Not run)
```

pirls.reg

*Regression analysis***Description**

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

**Usage**

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

**Arguments**

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

**Value**

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

**See Also**

timss.reg

**Examples**

```
## Not run:

# Exhibit 3.13 in User Guide 2006, p. 68

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

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

## End(Not run)
```

---

pirls.reg.pv

*Regression analysis with plausible values*


---

**Description**

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

**Usage**

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

**Arguments**

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



**Value**

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

**See Also**

timss.reg.pv, pisa.reg.pv

**Examples**

```
## Not run:

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

## End(Not run)
```

---

pirls.rho	<i>Correlation matrix</i>
-----------	---------------------------

---

**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      *Select and merge data*

---

**Description**

pirls.select.merge selects and merges data from PIRLS. Achievement and weight variabls (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", "ACDGCMP", "ACDG03"))

## End(Not run)
```

---

pirls.table	<i>Frequency table</i>
-------------	------------------------

---

**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., <code>by="IDCNTRYL"</code> ), but could be any other categorical variable.
data	An R object, normally a data frame, containing the data from PIRLS.
export	A logical value. If TRUE, the output is exported to a file in comma-separated value format (.csv) that can be opened from LibreOffice or Excel.
name	The name of the exported file.
folder	The folder where the exported file is located.

**Value**

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

**See Also**

timss.table, pisa.table

## Examples

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

---

pirls.var.label	<i>Data labels</i>
-----------------	--------------------

---

## Description

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

## Usage

```
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

```
## 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**

```
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**

<code>pvlabel</code>	The label corresponding to the achievement variable, for example, "READ", for overall reading performance.
<code>cutoff</code>	The cut-off points for the assessment benchmarks (e.g., <code>cutoff= c(357.77, 420.07, 482.38, 544.68, 606.99, 669.30)</code> ).
<code>by</code>	The label for the grouping variable, usually the countries (i.e., <code>by="IDCNTRYL"</code> ), but could be any other categorical variable.
<code>data</code>	An R object, normally a data frame, containing the data from PISA.
<code>export</code>	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.
<code>name</code>	The name of the exported file.
<code>folder</code>	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**

```
## 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**

```
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 "intsvy.reg".

**See Also**

pirls.log, timss.log

**Examples**

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

pisa12$SKIP[!(pisa12$ST09Q01 == "None" & pisa12$ST115Q01 == "None")] <- 1
pisa12$SKIP[pisa12$ST09Q01 == "None" & pisa12$ST115Q01 == "None"] <- 0

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

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

```
# 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

```
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**

```
## 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	<i>Calculates mean of variable</i>
-----------	------------------------------------

---

**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**

```
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**

```
## 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
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.mean.pv(pvlabel="MATH", by=c("IDCNTRYL", "ST08Q01"), data=pisa)

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

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

## End(Not run)
```

---

pisa.per.pv

*PISA percentiles*

---

**Description**

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

**Usage**

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

**Arguments**

<code>pvlabel</code>	The label corresponding to the achievement variable, for example, "READ", for overall reading performance.
<code>per</code>	User-defined percentiles (e.g., <code>per = c(5, 10, 25, 75, 90, 95)</code> ).
<code>by</code>	The label of the categorical grouping variable (e.g., <code>by="IDCNTRYL"</code> ) or variables (e.g., <code>by=c("IDCNTRYL", "ST79Q03")</code> ).
<code>data</code>	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**

```
## Not run:
# Table I.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)
```

---

pisa.reg

*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**

```
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**

```
## 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="ST004D01T", data=stud2015)

## End(Not run)
```

---

pisa.reg.pv

*Regression analysis with plausible values*

---

**Description**

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

**Usage**

```
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".

**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	<i>Correlation matrix</i>
----------	---------------------------

---

**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**

```
## 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**

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

**Arguments**

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

**Value**

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

**See Also**

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

**Examples**

```
## 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	<i>Frequency table</i>
------------	------------------------

---

**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**

```
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="IDCOUNTRYL"), 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**

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

## End(Not run)
```

---

pisa.var.label

*Data labels*

---

**Description**

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

**Usage**

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

**Arguments**

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.
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, piaac.mean or piaac.mean.pv functions.
se	If TRUE add whiskers for standard errors.
sort	If TRUE groups are sorted along averages.
...	Not used. Required for cran-check.

**Value**

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

**See Also**

plot.intsvy.table, plot.intsvy.reg

**Examples**

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

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

```

# Country averages for different age groups
head(pmeansNCA <- piae.mean.pv(pvlabel="NUM", by=c("CNTRYID", "AGEG10LFS"),
                             data=piaac, export=FALSE))
#
# plotting country average within
# age groups NUM performance
plot(pmeansNCA, sort=TRUE)

# Country averages for different age and gender groups (changed order)
head(pmeansNCGA <- piae.mean.pv(pvlabel="NUM", by=c("CNTRYID", "GENDER_R", "AGEG10LFS"),
                              data=piaac, export=FALSE))
#
# plotting country average within
# age and gender groups NUM performance
plot(na.omit(pmeansNCGA), sort=TRUE)

## End(Not run)

```

---

plot.intsvy.reg

*Graphical representation of regression models in groups*


---

## Description

Functions `pisa.reg`, `pisa.reg.pv`, `piae.reg` and `piae.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

<code>x</code>	An object of the class <code>intsvy.reg</code> returned by <code>pisa.reg</code> , <code>pisa.reg.pv</code> , <code>piae.reg</code> and <code>piae.reg.pv</code> functions.
<code>...</code>	Other arguments
<code>vars</code>	Variable labels of coefficients to be plotted. If none selected all coefficients are plotted including the R-squared
<code>se</code>	If TRUE add whiskers for standard errors.
<code>sort</code>	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.

**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=pisa12)
# Plot
plot(gen.mod, vars = c("COGACT", "TCHBEHTD", "TCHBEHSO"), sort=TRUE)

## End(Not run)
```

---

plot.intsvy.table      *Graphical representation of frequency tables*

---

**Description**

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

**Usage**

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

**Arguments**

x	An object of the class intsvy.table returned by pisa.table or piaac.table functions.
se	If TRUE add whiskers for standard errors (only for stacked=FALSE).
stacked	If TRUE plot bars stacked one over another.
centered	If TRUE then bars will be centered around midpoint.
midpoint	A single number, which specifies the segment around which bars are centered. By default it's the middle segment calculated as (n.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**

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

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

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

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

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

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

## End(Not run)
```

---

timss.ben.pv

*TIMSS international benchmarks*

---

**Description**

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

**Usage**

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

**Arguments**

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

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.
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

```
## Not run:
# TIMSS G8: Exhibit 2.14 User Guide TIMSS 2011, p. 24
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

```
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**

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

pisa12$SKIP[!(pisa12$ST09Q01 == "None" & pisa12$ST115Q01 == "None")] <- 1
pisa12$SKIP[pisa12$ST09Q01 == "None" & pisa12$ST115Q01 == "None"] <- 0

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

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

# 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)
```

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	<i>Calculates mean of variable</i>
------------	------------------------------------

---

### 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

```
## 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

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

### Arguments

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

### Value

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

### See Also

pirls.mean.pv, pisa.mean.pv

### Examples

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

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

## End(Not run)
```

---

timss.per.pv	<i>TIMSS percentiles</i>
--------------	--------------------------

---

**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:
# Appendix G.2, p. 484, TIMSS 2011 International Results in Mathematics
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

<code>y</code>	Label for dependent variable.
<code>x</code>	Data labels of independent variables.
<code>by</code>	The label for the grouping variable, usually the countries (i.e., <code>by="IDCNTRYL"</code> ), but could be any other categorical variable.
<code>data</code>	An R object, normally a data frame, containing the data from TIMSS.
<code>export</code>	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.
<code>name</code>	The name of the exported file.
<code>folder</code>	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)
```

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

**Arguments**

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

**Value**

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

**See Also**

pirls.reg.pv, pisa.reg.pv

**Examples**

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

## End(Not run)
```

---

timss.rho	<i>Correlation matrix</i>
-----------	---------------------------

---

### Description

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

### Usage

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

### Arguments

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`*Two-way weighted correlation with plausible values*

---

## Description

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

## Usage

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

## Arguments

<code>variable</code>	A data label for the observed variable
<code>pvlabels</code>	One or two labels describing the achievement variables.
<code>by</code>	The label for the grouping variable, usually the countries (i.e., <code>by="IDCNTRYL"</code> ), but could be any other categorical variable.
<code>data</code>	An R object, normally a data frame, containing the data from TIMSS.
<code>export</code>	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.
<code>name</code>	The name of the exported file.
<code>folder</code>	The folder where the exported file is located.

## Value

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

## See Also

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

## Examples

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

## End(Not run)
```

---

timss.table	<i>Frequency table</i>
-------------	------------------------

---

### 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())
```

### Arguments

variable	The data label with the variable to be analysed.
by	The label for the grouping variable, usually the countries (i.e., <code>by="IDCNTRYL"</code> ), 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

```
## Not run:  
  
# TIMSS G4: Exhibit 8.1 International Report 2011, p. 330  
timss.table(variable="ASDGSLM", by="IDCNTRYL", data=timss4g)  
  
# TIMSS G8: Exhibit 2.19 User Guide TIMSS 2011, p. 29  
timss.table(variable="BSDGSLM", by="IDCNTRYL", data=timss8g)  
  
## End(Not run)
```



---

timssg4.select.merge *Select and merge data*

---

### Description

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

### Usage

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

### Arguments

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

### Value

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

### See Also

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

### Examples

```
## Not run:
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**

```
## 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	<i>Data labels</i>
-------------------	--------------------

---

**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**

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

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