

Examples with PISA 2022

```
library("devtools")
install_github("eldafani/intsvy")
library("intsvy")
```

Select data

Check names of variables in student and school files and names of participating countries for data selection. Datasets are stored in directory, *dir*.

```
pisa.var.label(folder = dir,
               student.file="CY08MSP_STU_QQQ.sav",
               school.file="CY08MSP_SCH_QQQ.sav", output = dir)
```

Select data for three countries, student's SES, sex, and school's location

```
pisa <- pisa.select.merge(folder = dir,
                          student.file="CY08MSP_STU_QQQ.sav",
                          school.file="CY08MSP_SCH_QQQ.sav",
                          student= c("ESCS", "ST004D01T"),
                          school = c("SC001Q01TA"),
                          countries = c("ARG", "FRA", "PER"))
```

```
## File character set is 'UTF-8'.
## Converting character set to UTF-8.
## Warning: 1 variables have duplicated labels:
##   LANGN
## File character set is 'UTF-8'.
## Converting character set to UTF-8.
```

Calculate average mathematics score by country

The average mathematics score and its associated standard error are presented, first for Argentina, second for France and third for Peru.

```
pisa.mean.pv(pvlabel = paste0("PV", 1:10, "MATH"), by = "CNT", data = pisa)
```

```
##   CNT Freq   Mean s.e.   SD s.e
## 1 ARG 12111 377.53 2.25 74.42 1.06
## 2 FRA  6770 473.94 2.49 91.06 1.07
## 3 PER  6968 391.24 2.34 77.91 1.17
```

Calculate average mathematics score by country and sex

```
pisa.mean.pv(pvlabel = paste0("PV", 1:10, "MATH"), by = c("CNT", "ST004D01T"), data = pisa)
```

```
##   CNT ST004D01T Freq   Mean s.e.   SD s.e
## 1 ARG   Female 6094 372.04 2.55 71.74 1.37
```

```
## 2 ARG      Male 6017 383.03 2.42 76.63 1.29
## 3 FRA      Female 3406 469.14 2.51 85.87 1.39
## 4 FRA      Male 3364 478.93 3.44 95.90 1.30
## 5 PER      Female 3474 383.65 2.48 74.58 1.50
## 6 PER      Male 3494 398.82 2.82 80.38 1.37
```

Calculate proficiency levels by country

Cutoff scores for mathematics performance

```
mathcut <- c(357.77, 420.07, 482.38, 544.68, 606.99, 669.3)
```

Produce table with results

```
pisa.ben.pv(pvlabel= paste0("PV", 1:10, "MATH"), cutoff= mathcut, by="CNT", data=pisa)
```

| ## | CNT | | Benchmark | Percentage | Std. err. |
|-------|-----|-------------|-----------|------------|-----------|
| ## 1 | ARG | At or above | 357.77 | 57.91 | 1.33 |
| ## 2 | ARG | At or above | 420.07 | 27.07 | 1.18 |
| ## 3 | ARG | At or above | 482.38 | 8.93 | 0.61 |
| ## 4 | ARG | At or above | 544.68 | 2.01 | 0.27 |
| ## 5 | ARG | At or above | 606.99 | 0.30 | 0.08 |
| ## 6 | ARG | At or above | 669.3 | 0.02 | 0.02 |
| ## 7 | FRA | At or above | 357.77 | 89.04 | 0.69 |
| ## 8 | FRA | At or above | 420.07 | 71.19 | 1.11 |
| ## 9 | FRA | At or above | 482.38 | 46.97 | 1.21 |
| ## 10 | FRA | At or above | 544.68 | 23.10 | 0.95 |
| ## 11 | FRA | At or above | 606.99 | 7.39 | 0.51 |
| ## 12 | FRA | At or above | 669.3 | 1.14 | 0.20 |
| ## 13 | PER | At or above | 357.77 | 64.31 | 1.24 |
| ## 14 | PER | At or above | 420.07 | 33.83 | 1.18 |
| ## 15 | PER | At or above | 482.38 | 13.06 | 0.78 |
| ## 16 | PER | At or above | 544.68 | 3.31 | 0.39 |
| ## 17 | PER | At or above | 606.99 | 0.49 | 0.12 |
| ## 18 | PER | At or above | 669.3 | 0.03 | 0.03 |

Estimate regression of reading on sex by country

```
pisa.reg.pv(pvlabel= paste0("PV", 1:10, "READ"), x="ST004D01T", by = "CNT", data=pisa)
```

```
## $ARG
##           Estimate Std. Error t value
## (Intercept)    407.86      2.79 146.20
## ST004D01TMale  -14.25      2.53  -5.63
## R-squared      0.01      0.00   2.82
##
## $FRA
##           Estimate Std. Error t value
## (Intercept)    483.77      3.22 150.18
## ST004D01TMale  -20.21      4.26  -4.74
## R-squared      0.01      0.00   2.44
##
## $PER
##           Estimate Std. Error t value
```

```
## (Intercept)      412.30      3.11  132.66
## ST004D01TMale   -8.11      3.10   -2.61
## R-squared        0.00      0.00    1.28
```

Estimate regression of mathematics on SES by country

```
pisa.reg.pv(pvlabel= paste0("PV", 1:10, "MATH"), x="ESCS", by = "CNT", data=pisa)
```

```
## $ARG
##           Estimate Std. Error t value
## (Intercept)  398.46      2.03  196.74
## ESCS         25.69      1.20   21.45
## R-squared     0.15      0.01  11.56
##
## $FRA
##           Estimate Std. Error t value
## (Intercept)  475.59      1.92  248.05
## ESCS         45.52      1.52   29.86
## R-squared     0.21      0.01  16.38
##
## $PER
##           Estimate Std. Error t value
## (Intercept)  421.74      2.43  173.77
## ESCS         26.16      1.08   24.29
## R-squared     0.17      0.01  11.92
```