

Examples with PISA 2018

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

The object *pisa* contains the PISA 2018 student dataset for a sample of countries.

Calculate average reading score by country

```
pisa.mean.pv(pvlabel = "READ", by = "CNT", data = pisa)
```

##		CNT	Freq	Mean	s.e.	SD	s.e
## 1		Chile	7621	452.27	2.64	92.02	1.21
## 2	United Kingdom		13818	503.93	2.58	100.21	1.27
## 3		Indonesia	12098	370.97	2.56	75.12	1.68
## 4		Lithuania	6885	475.87	1.52	94.30	1.00
## 5		Luxembourg	5230	469.99	1.13	108.40	1.00
## 6		Malta	3363	448.23	1.73	112.81	1.24
## 7		Montenegro	6666	421.06	1.05	86.01	0.79
## 8	Russian Federation		7608	478.50	3.08	92.90	1.82
## 9		Ukraine	5998	465.95	3.50	93.34	1.70
## 10		United States	4838	505.35	3.57	107.89	1.57

Calculate average reading score by country and sex

```
pisa.mean.pv(pvlabel = "READ", by = c("CNT", "ST004D01T"), data = pisa)
```

##		CNT	ST004D01T	Freq	Mean	s.e.	SD	s.e
## 1		Chile	Female	3814	462.30	2.91	87.16	1.43
## 2		Chile	Male	3807	442.49	3.43	95.51	1.46
## 3	United Kingdom		Female	6996	513.70	3.12	97.62	1.78
## 4	United Kingdom		Male	6822	493.57	3.18	101.87	1.59
## 5		Indonesia	Female	6240	383.43	2.67	73.38	1.91
## 6		Indonesia	Male	5858	358.09	3.17	74.73	1.97
## 7		Lithuania	Female	3377	495.63	1.82	88.41	1.36
## 8		Lithuania	Male	3508	456.97	1.84	95.88	1.30
## 9		Luxembourg	Female	2594	484.81	1.61	103.88	1.38
## 10		Luxembourg	Male	2636	455.56	1.54	110.74	1.32
## 11		Malta	Female	1612	473.55	2.35	101.67	1.56
## 12		Malta	Male	1751	425.01	2.40	117.44	1.91
## 13		Montenegro	Female	3240	436.83	1.22	81.25	1.12
## 14		Montenegro	Male	3426	406.58	1.65	87.70	1.01
## 15	Russian Federation		Female	3861	491.02	3.33	89.17	2.15
## 16	Russian Federation		Male	3747	465.78	3.17	94.86	1.92
## 17		Ukraine	Female	2857	483.56	3.63	87.37	2.03
## 18		Ukraine	Male	3141	450.10	4.21	95.67	1.96
## 19		United States	Female	2376	517.38	3.58	102.94	1.80

```
## 20      United States      Male 2462 493.83 4.23 111.22 2.24
```

Calculate proficiency levels by country

Define cutoff points for reading in 2018

```
readcut <- c(189.33, 262.04, 334.75, 407.47, 480.18, 552.89, 625.61, 698.32)
```

Produce table with results

```
pisa.ben.pv(pvlabel="READ", cutoff= readcut, by="CNT", data=pisa)
```

##	CNT	Benchmarks	Percentage	Std. err.
## 1	Chile	<= 189.33	0.10	0.09
## 2	Chile	(189.33, 262.04]	1.72	0.24
## 3	Chile	(262.04, 334.75]	8.87	0.62
## 4	Chile	(334.75, 407.47]	21.04	0.90
## 5	Chile	(407.47, 480.18]	29.49	0.86
## 6	Chile	(480.18, 552.89]	24.42	0.86
## 7	Chile	(552.89, 625.61]	11.78	0.60
## 8	Chile	(625.61, 698.32]	2.41	0.28
## 9	Chile	> 698.32	0.18	0.07
## 10	United Kingdom	<= 189.33	0.03	0.03
## 11	United Kingdom	(189.33, 262.04]	0.82	0.16
## 12	United Kingdom	(262.04, 334.75]	4.17	0.39
## 13	United Kingdom	(334.75, 407.47]	12.29	0.68
## 14	United Kingdom	(407.47, 480.18]	22.98	0.72
## 15	United Kingdom	(480.18, 552.89]	27.22	0.67
## 16	United Kingdom	(552.89, 625.61]	21.05	0.82
## 17	United Kingdom	(625.61, 698.32]	9.45	0.63
## 18	United Kingdom	> 698.32	2.00	0.24
## 19	Indonesia	<= 189.33	0.21	0.11
## 20	Indonesia	(189.33, 262.04]	6.30	0.65
## 21	Indonesia	(262.04, 334.75]	26.66	1.03
## 22	Indonesia	(334.75, 407.47]	36.74	1.11
## 23	Indonesia	(407.47, 480.18]	21.77	0.99
## 24	Indonesia	(480.18, 552.89]	7.17	0.77
## 25	Indonesia	(552.89, 625.61]	1.09	0.24
## 26	Indonesia	(625.61, 698.32]	0.06	0.04
## 27	Indonesia	> 698.32	0.00	0.00
## 28	Lithuania	<= 189.33	0.03	0.03
## 29	Lithuania	(189.33, 262.04]	1.04	0.20
## 30	Lithuania	(262.04, 334.75]	6.31	0.42
## 31	Lithuania	(334.75, 407.47]	16.98	0.59
## 32	Lithuania	(407.47, 480.18]	26.11	0.75
## 33	Lithuania	(480.18, 552.89]	27.69	0.74
## 34	Lithuania	(552.89, 625.61]	16.85	0.58
## 35	Lithuania	(625.61, 698.32]	4.53	0.37
## 36	Lithuania	> 698.32	0.45	0.11
## 37	Luxembourg	<= 189.33	0.15	0.09
## 38	Luxembourg	(189.33, 262.04]	2.35	0.23
## 39	Luxembourg	(262.04, 334.75]	9.16	0.44
## 40	Luxembourg	(334.75, 407.47]	17.63	0.59
## 41	Luxembourg	(407.47, 480.18]	23.69	0.67

## 42	Luxembourg	(480.18, 552.89]	23.46	0.74
## 43	Luxembourg	(552.89, 625.61]	15.95	0.62
## 44	Luxembourg	(625.61, 698.32]	6.36	0.44
## 45	Luxembourg	> 698.32	1.25	0.18
## 46	Malta	<= 189.33	0.65	0.22
## 47	Malta	(189.33, 262.04]	4.78	0.44
## 48	Malta	(262.04, 334.75]	11.93	0.70
## 49	Malta	(334.75, 407.47]	18.52	0.89
## 50	Malta	(407.47, 480.18]	23.73	0.90
## 51	Malta	(480.18, 552.89]	21.66	0.90
## 52	Malta	(552.89, 625.61]	13.39	0.89
## 53	Malta	(625.61, 698.32]	4.47	0.51
## 54	Malta	> 698.32	0.87	0.20
## 55	Montenegro	<= 189.33	0.11	0.06
## 56	Montenegro	(189.33, 262.04]	2.78	0.27
## 57	Montenegro	(262.04, 334.75]	13.53	0.53
## 58	Montenegro	(334.75, 407.47]	28.00	0.68
## 59	Montenegro	(407.47, 480.18]	30.49	0.64
## 60	Montenegro	(480.18, 552.89]	18.34	0.56
## 61	Montenegro	(552.89, 625.61]	5.98	0.40
## 62	Montenegro	(625.61, 698.32]	0.76	0.22
## 63	Montenegro	> 698.32	0.02	0.02
## 64	Russian Federation	<= 189.33	0.03	0.03
## 65	Russian Federation	(189.33, 262.04]	1.00	0.25
## 66	Russian Federation	(262.04, 334.75]	5.60	0.56
## 67	Russian Federation	(334.75, 407.47]	15.46	0.86
## 68	Russian Federation	(407.47, 480.18]	28.09	0.84
## 69	Russian Federation	(480.18, 552.89]	28.04	0.83
## 70	Russian Federation	(552.89, 625.61]	16.35	0.73
## 71	Russian Federation	(625.61, 698.32]	4.81	0.46
## 72	Russian Federation	> 698.32	0.62	0.13
## 73	Ukraine	<= 189.33	0.17	0.08
## 74	Ukraine	(189.33, 262.04]	1.80	0.29
## 75	Ukraine	(262.04, 334.75]	7.21	0.69
## 76	Ukraine	(334.75, 407.47]	16.73	0.87
## 77	Ukraine	(407.47, 480.18]	27.73	0.81
## 78	Ukraine	(480.18, 552.89]	28.48	0.97
## 79	Ukraine	(552.89, 625.61]	14.47	0.82
## 80	Ukraine	(625.61, 698.32]	3.24	0.44
## 81	Ukraine	> 698.32	0.17	0.11
## 82	United States	<= 189.33	0.07	0.05
## 83	United States	(189.33, 262.04]	1.07	0.25
## 84	United States	(262.04, 334.75]	5.37	0.47
## 85	United States	(334.75, 407.47]	12.75	0.76
## 86	United States	(407.47, 480.18]	21.09	0.81
## 87	United States	(480.18, 552.89]	24.66	0.77
## 88	United States	(552.89, 625.61]	21.45	0.84
## 89	United States	(625.61, 698.32]	10.71	0.72
## 90	United States	> 698.32	2.83	0.36

Estimate regression of reading on sex by country

```
pisa.reg.pv(pvlabel="READ", x="ST004D01T", by = "CNT", data=pisa)
```

```

## $Chile
##           Estimate Std. Error t value
## (Intercept)    462.30      2.91  159.09
## ST004D01TMale  -19.81      3.64   -5.44
## R-squared      0.01      0.00    2.76
##
## $`United Kingdom`
##           Estimate Std. Error t value
## (Intercept)    513.70      3.12  164.65
## ST004D01TMale  -20.12      3.64   -5.52
## R-squared      0.01      0.00    2.75
##
## $Indonesia
##           Estimate Std. Error t value
## (Intercept)    383.43      2.67  143.50
## ST004D01TMale  -25.34      3.01   -8.43
## R-squared      0.03      0.01    4.32
##
## $Lithuania
##           Estimate Std. Error t value
## (Intercept)    495.63      1.82  272.81
## ST004D01TMale  -38.66      2.21  -17.46
## R-squared      0.04      0.00    9.04
##
## $Luxembourg
##           Estimate Std. Error t value
## (Intercept)    484.81      1.61  301.00
## ST004D01TMale  -29.25      2.19  -13.34
## R-squared      0.02      0.00    6.58
##
## $Malta
##           Estimate Std. Error t value
## (Intercept)    473.55      2.35  201.15
## ST004D01TMale  -48.54      3.30  -14.71
## R-squared      0.05      0.01    7.60
##
## $Montenegro
##           Estimate Std. Error t value
## (Intercept)    436.83      1.22  357.19
## ST004D01TMale  -30.25      2.02  -14.96
## R-squared      0.03      0.00    7.64
##
## $`Russian Federation`
##           Estimate Std. Error t value
## (Intercept)    491.02      3.33  147.57
## ST004D01TMale  -25.25      2.24  -11.29
## R-squared      0.02      0.00    6.10
##
## $Ukraine
##           Estimate Std. Error t value
## (Intercept)    483.56      3.63  133.30
## ST004D01TMale  -33.46      3.86   -8.67
## R-squared      0.03      0.01    4.54
##

```

```
## $`United States`  
##           Estimate Std. Error t value  
## (Intercept)    517.38      3.58  144.54  
## ST004D01TMale  -23.55      3.51   -6.71  
## R-squared      0.01      0.00    3.45
```