

## Examples with TIMSS 2019

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

### Grade 4

#### Read data

The object `dir` specifies the directory path where the TIMSS 2019 data is located (eg. `"/home/data"`). Variable selection can be done with aid of `timssg4.var.label(dir)`

```
timss <- timssg4.select.merge(folder= dir,
  student= c("ITSEX", "ASBG05A", "ASBG05B", "ASBG05C", "ASBG05D",
    "ASBG03"),
  home= c("ASBH14", "ASBH10", "ASDHEDUP", "ASDHOCPP", "ASBH17A", "ASBH17B"),
  school= c("ACBG05B"),
  countries = c("ARE", "CHL", "CAN", "HUN"))
```

#### Calculate mean math performance by education system

```
timss.mean.pv(pvlabel="ASMMAT", by= "IDCNTRYL", data=timss)
```

##	IDCNTRYL	Freq	Mean	s.e.	SD	s.e
## 1	Canada	13653	511.56	1.86	76.24	1.19
## 2	Chile	4174	440.97	2.72	74.92	1.59
## 3	Hungary	4571	523.43	2.64	77.62	1.45
## 4	United Arab Emirates	25834	481.39	1.71	98.53	0.87

#### Calculate mean math performance by education system and student's sex

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

##	IDCNTRYL	ITSEX	Freq	Mean	s.e.	SD	s.e
## 1	Canada	1	6731	501.92	2.54	74.27	1.50
## 2	Canada	2	6884	520.79	1.95	76.96	1.32
## 3	Canada	<NA>	38	496.52	12.87	73.07	10.20
## 4	Chile	1	2076	436.66	3.43	73.16	1.94
## 5	Chile	2	2098	445.21	3.13	76.37	2.18
## 6	Hungary	1	2212	517.63	3.03	75.67	1.93
## 7	Hungary	2	2359	528.82	3.06	79.02	1.79
## 8	United Arab Emirates	1	12885	477.43	2.53	95.42	1.07
## 9	United Arab Emirates	2	12879	485.60	2.27	101.43	1.30
## 10	United Arab Emirates	<NA>	70	441.38	13.20	82.65	12.13

## International benchmarks by education system

```
intsvy.ben.pv(pvnames="ASMMAT", cutoff = c(400, 475, 550, 625),
             by= c("IDCNTRYL", "ITSEX"), data=timss, config = timss4_conf)
```

##	IDCNTRYL	ITSEX	Benchmark	Percentage	Std. err.
## 1	Canada	1	At or above 400	90.94	0.76
## 2	Canada	1	At or above 475	64.75	1.37
## 3	Canada	1	At or above 550	26.60	1.37
## 4	Canada	1	At or above 625	4.33	0.70
## 5	Canada	2	At or above 400	93.79	0.58
## 6	Canada	2	At or above 475	72.52	1.14
## 7	Canada	2	At or above 550	36.61	1.23
## 8	Canada	2	At or above 625	8.38	0.82
## 9	Canada	<NA>	At or above 400	93.11	4.66
## 10	Canada	<NA>	At or above 475	62.04	10.31
## 11	Canada	<NA>	At or above 550	19.92	9.81
## 12	Canada	<NA>	At or above 625	5.50	4.61
## 13	Chile	1	At or above 400	68.78	2.04
## 14	Chile	1	At or above 475	30.42	1.85
## 15	Chile	1	At or above 550	6.01	0.72
## 16	Chile	1	At or above 625	0.43	0.13
## 17	Chile	2	At or above 400	71.95	1.81
## 18	Chile	2	At or above 475	35.61	1.69
## 19	Chile	2	At or above 550	8.57	0.85
## 20	Chile	2	At or above 625	0.77	0.21
## 21	Hungary	1	At or above 400	93.05	1.00
## 22	Hungary	1	At or above 475	71.58	1.72
## 23	Hungary	1	At or above 550	35.07	1.55
## 24	Hungary	1	At or above 625	7.33	0.94
## 25	Hungary	2	At or above 400	93.43	0.98
## 26	Hungary	2	At or above 475	75.56	1.56
## 27	Hungary	2	At or above 550	41.93	1.71
## 28	Hungary	2	At or above 625	10.63	0.94
## 29	United Arab Emirates	1	At or above 400	78.53	0.89
## 30	United Arab Emirates	1	At or above 475	51.68	1.28
## 31	United Arab Emirates	1	At or above 550	23.57	0.90
## 32	United Arab Emirates	1	At or above 625	5.79	0.45
## 33	United Arab Emirates	2	At or above 400	78.45	0.98
## 34	United Arab Emirates	2	At or above 475	55.26	1.04
## 35	United Arab Emirates	2	At or above 550	28.78	0.87
## 36	United Arab Emirates	2	At or above 625	7.94	0.40
## 37	United Arab Emirates	<NA>	At or above 400	73.02	7.56
## 38	United Arab Emirates	<NA>	At or above 475	37.10	7.11
## 39	United Arab Emirates	<NA>	At or above 550	7.80	4.02
## 40	United Arab Emirates	<NA>	At or above 625	0.32	0.53

## International benchmarks by education system and student's sex

```
intsvy.ben.pv(pvnames="ASMMAT", cutoff = c(400, 475, 550, 625),
             by= c("IDCNTRYL", "ITSEX"), data=timss, config = timss4_conf)
```

##	IDCNTRYL	ITSEX	Benchmark	Percentage	Std. err.
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## 4	Canada	1	At or above	625	4.33	0.70
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## 6	Canada	2	At or above	475	72.52	1.14
## 7	Canada	2	At or above	550	36.61	1.23
## 8	Canada	2	At or above	625	8.38	0.82
## 9	Canada	<NA>	At or above	400	93.11	4.66
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## 11	Canada	<NA>	At or above	550	19.92	9.81
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## 20	Chile	2	At or above	625	0.77	0.21
## 21	Hungary	1	At or above	400	93.05	1.00
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## 35	United Arab Emirates	2	At or above	550	28.78	0.87
## 36	United Arab Emirates	2	At or above	625	7.94	0.40
## 37	United Arab Emirates	<NA>	At or above	400	73.02	7.56
## 38	United Arab Emirates	<NA>	At or above	475	37.10	7.11
## 39	United Arab Emirates	<NA>	At or above	550	7.80	4.02
## 40	United Arab Emirates	<NA>	At or above	625	0.32	0.53