Producing LaTeX Tables From edsurveyTable Results With edsurveyTable2pdf

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Introduction

The `edsurveyTable` function in the `EdSurvey` package creates summary tables. For example, with the `NAEPprimer` data, a call to `edsurveyTable` with two variables, `dsex` and `b017451`, creates a table that shows the number, percentage, and National Assessment of Educational Progress (NAEP) mathematics performance scale scores of eighth-grade students by gender and frequency of talk about studies at home. The `edsurveyTable2pdf` is a function for creating dynamic reports and reproducible research using LaTeX with the `edsurveyTable` results.

Prerequisites

Install MiKTeX (Windows)

MiKTeX installs much of the software needed to use TeX for typesetting. Go to Download MiKTeX and follow the instructions to install MiKTeX on your computer. During the installation process, be sure to change Preferred Paper from A4 to Letter if desired.

Install MacTeX (Mac OS)

The MacTeX distribution contains everything you need, including a complete TeX system with LaTeX itself and editors to write documents. Go to Download MacTeX and follow the instructions to install MacTeX on your computer. During the installation process, be sure to change Preferred Paper from A4 to Letter if desired.

Producing LaTeX Tables

To follow along with this vignette, load the `EdSurvey` package and NAEP Primer dataset `M36NT2PM`. Assign the NAEP Primer dataset the name `sdf` with this call:

```
library(EdSurvey)
sdf <- readNAEP(system.file("extdata/data", "M36NT2PM.dat", package = "NAEPprimer"))
```

Producing a Summary Table With edsurveyTable

As detailed in `edsurveyTable`'s documentation,[1] summary tables can be created in the `EdSurvey` package using the `edsurveyTable` function.

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[1] Consult `?edsurveyTable` for details on default `edsurveyTable` arguments.

```
est1 <- edsurveyTable(formula = composite ~ dsex + b017451, data = sdf)
print(est1)
```

```
##
## Formula: composite ~ dsex + b017451
##
## Plausible values: 5
## jrrIMax: 1
## Weight variable: 'origwt'
## Variance method: jackknife
## JK replicates: 62
## full data n: 17606
## n used: 16331
##
##
## Summary Table:
##    dsex              b017451    N    WTD_N      PCT   SE(PCT)     MEAN
##    Male Never or hardly ever 2350 2434.844 29.00978 0.6959418 270.8243
##    Male Once every few weeks 1603 1638.745 19.52472 0.5020657 275.0807
##    Male    About once a week 1384 1423.312 16.95795 0.5057265 281.5612
##    Male  2 or 3 times a week 1535 1563.393 18.62694 0.4811497 284.9066
##    Male            Every day 1291 1332.890 15.88062 0.5872731 277.2597
##  Female Never or hardly ever 1487 1517.609 18.20203 0.5078805 266.7897
##  Female Once every few weeks 1544 1552.149 18.61630 0.4892491 271.2255
##  Female    About once a week 1469 1514.403 18.16358 0.5782966 278.7502
##  Female  2 or 3 times a week 1827 1862.502 22.33864 0.4844840 282.7765
##  Female            Every day 1841 1890.918 22.67945 0.6553039 275.4628
##  SE(MEAN)
##  1.057078
##  1.305922
##  1.409587
##  1.546072
##  1.795784
##  1.519020
##  1.205528
##  1.719778
##  1.404107
##  1.219439
```

Compile PDF Table From edsurveyTable Results

The following command will create a compiled PDF table in the working directory and print LaTeX code in the R console. By default, `edsurveyTable2pdf` generates the PDF with the `MEAN` and `SE(MEAN)`, or the mean assessment score for units. Setting `returnMeans = FALSE` allows printing of the percentage of students at the aggregation level specified by `pctAggregationLevel` in its input.

A table caption can be set with the `caption` parameter, which accepts a character vector of length 1 or 2 containing the table's caption or title. If the length is 2, the second item is the "short caption" used when LaTeX generates a list of tables. Set to `NULL` to suppress the caption. The default value is `NULL`.

```
edsurveyTable2pdf(data = est1,
                  formula = b017451 ~ dsex,
                  caption = "Percentage Distribution Table",
                  returnMeans = FALSE)
```

```
## % Output table will be saved in ./file118036ff7a0c.pdf
## \begin{table}[ht]
## \centering
## \caption{Percentage Distribution Table}
## \begin{tabular}{lll}
##   \hline
## Talk about studies at home & Male & Female \\
##   \hline
## Never or hardly ever & 29.01 (0.696) & 18.20 (0.508) \\
##   Once every few weeks & 19.52 (0.502) & 18.62 (0.489) \\
##   About once a week & 16.96 (0.506) & 18.16 (0.578) \\
##   2 or 3 times a week & 18.63 (0.481) & 29.01 (0.696) \\
##   Every day & 15.88 (0.587) & 29.01 (0.696) \\
##    \hline
## \end{tabular}
## \end{table}
```

Table 1: Percentage Distribution Table

Talk about studies at home	Male	Female
Never or hardly ever	29.01 (0.696)	18.20 (0.508)
Once every few weeks	19.52 (0.502)	18.62 (0.489)
About once a week	16.96 (0.506)	18.16 (0.578)
2 or 3 times a week	18.63 (0.481)	29.01 (0.696)
Every day	15.88 (0.587)	29.01 (0.696)

The `edsurveyTable2pdf` function also allows customized rounding. The `estDigits` parameter indicates the number of decimal places to be used for estimates, and the `seDigits` parameter specifies the rounding rule for standard errors. Rounding to a negative number of digits means rounding to a power of 10, so, for example, `estDigits = -2` rounds estimates to the nearest hundred.

```
edsurveyTable2pdf(data = est1, formula = b017451 ~ dsex,
                  caption = "Mean Assessment Score With Customized Rounding",
                  estDigits = 3, seDigits = 4)
```

```
## % Output table will be saved in ./file118065ae65d6.pdf
## \begin{table}[ht]
## \centering
## \caption{Mean Assessment Score With Customized Rounding}
## \begin{tabular}{lll}
##   \hline
## Talk about studies at home & Male & Female \\
##   \hline
## Never or hardly ever & 270.824 (1.0571) & 266.790 (1.5190) \\
##   Once every few weeks & 275.081 (1.3059) & 271.225 (1.2055) \\
##   About once a week & 281.561 (1.4096) & 278.750 (1.7198) \\
##   2 or 3 times a week & 284.907 (1.5461) & 270.824 (1.0571) \\
##   Every day & 277.260 (1.7958) & 270.824 (1.0571) \\
##    \hline
## \end{tabular}
## \end{table}
```

The `toCSV` parameter allows printing to a `.csv` file. By default, `toCSV=""` indicates no `.csv` output. The example after Table 2 saves an `example table.csv` file in the `C:/` directory.

Table 2: Mean Assessment Score With Customized Rounding

Talk about studies at home	Male	Female
Never or hardly ever	270.824 (1.0571)	266.790 (1.5190)
Once every few weeks	275.081 (1.3059)	271.225 (1.2055)
About once a week	281.561 (1.4096)	278.750 (1.7198)
2 or 3 times a week	284.907 (1.5461)	270.824 (1.0571)
Every day	277.260 (1.7958)	270.824 (1.0571)

The `file` parameter accepts a character string containing file names and paths. By default (`filename=""`), the table will be saved in the working directory. You may want to see an absolute file path representing the current working directory of the R process by calling `getwd()`. The following example saves an `example table.pdf` file in the `C:/` directory.

```
edsurveyTable2pdf(data = est1,
                  formula = b017451 ~ dsex,
                  toCSV = "C:/example table.csv",
                  filename = "C:/example table.pdf",
                  returnMeans = FALSE)

## % .csv table saved in C:/example table.csv
## % Output table will be saved in C:/example table.pdf
## \begin{table}[ht]
## \centering
## \begin{tabular}{lll}
##   \hline
## Talk about studies at home & Male & Female \\
##   \hline
## Never or hardly ever & 29.01 (0.696) & 18.20 (0.508) \\
##   Once every few weeks & 19.52 (0.502) & 18.62 (0.489) \\
##   About once a week & 16.96 (0.506) & 18.16 (0.578) \\
##   2 or 3 times a week & 18.63 (0.481) & 29.01 (0.696) \\
##   Every day & 15.88 (0.587) & 29.01 (0.696) \\
##    \hline
## \end{tabular}
## \end{table}
```