More Graphics Options

Today we'll go over a few more things you can do in creating descriptives. We'll focus on categorical and binary data since many of you are using categorical predictors.

```
. capture log close                    // closes any logs, should they be open

. set linesize 90

. log using "more_graphics.log", replace     // open new log
-------------------------------------------------------------------------------------------
      name:  <unnamed>
       log:  /Users/doylewr/lpo_prac/lessons/s1-11-more_graphics/more_graphics.log
  log type:  text
 opened on:  11 Nov 2020, 12:59:55

. clear all                            // clear memory

. set more off                         // turn off annoying "__more__" feature

. global datadir "../data/"

. global plotdir "../plots/"

. global tabsdir "../tables/"

. global gtype eps

. global ttype html

. set scheme s1color

. use ../s1-10-programming/plans_b, clear

. recode f1psepln (1=1 "No Plans") ///
                  (2=2 "Don't Know'") ///
                  (3=3 "Vo-tech") ///
                  (4=4 "CC") ///
                  (5=5 "4 yr") ///
                  (6=6 "Early grad"), ///
                  gen(f1psepln2)

(0 differences between f1psepln and f1psepln2)

. recode bystexp (-1=-1 "Don't Know") ///
                 (1=1 "Less than HS") ///
                 (2=2 "HS/GED") ///
                 (3=3 "2 yr") ///
                 (4=4 "4 yr/ not graduate") ///
                 (5=5 "Bachelor's") ///
                 (6=6 "Master's") ///
                 (7=7 "PhD/Advanced"), ///
                 gen(bystexp2)

(0 differences between bystexp and bystexp2)

. la var bystexp2 " "

. recode bysex(1=1 "Male") ///
              (2=2 "Female"), ///
              gen(bysex2)

(0 differences between bysex and bysex2)
```
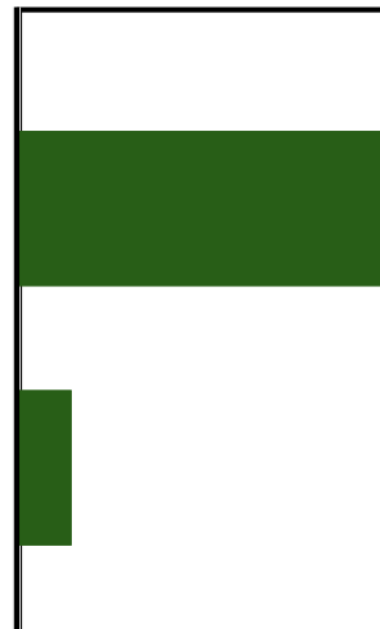
Catplot

Catplot is an add-on function that's designed for plotting categorical variables. If we do a basic catplot it would look like this:
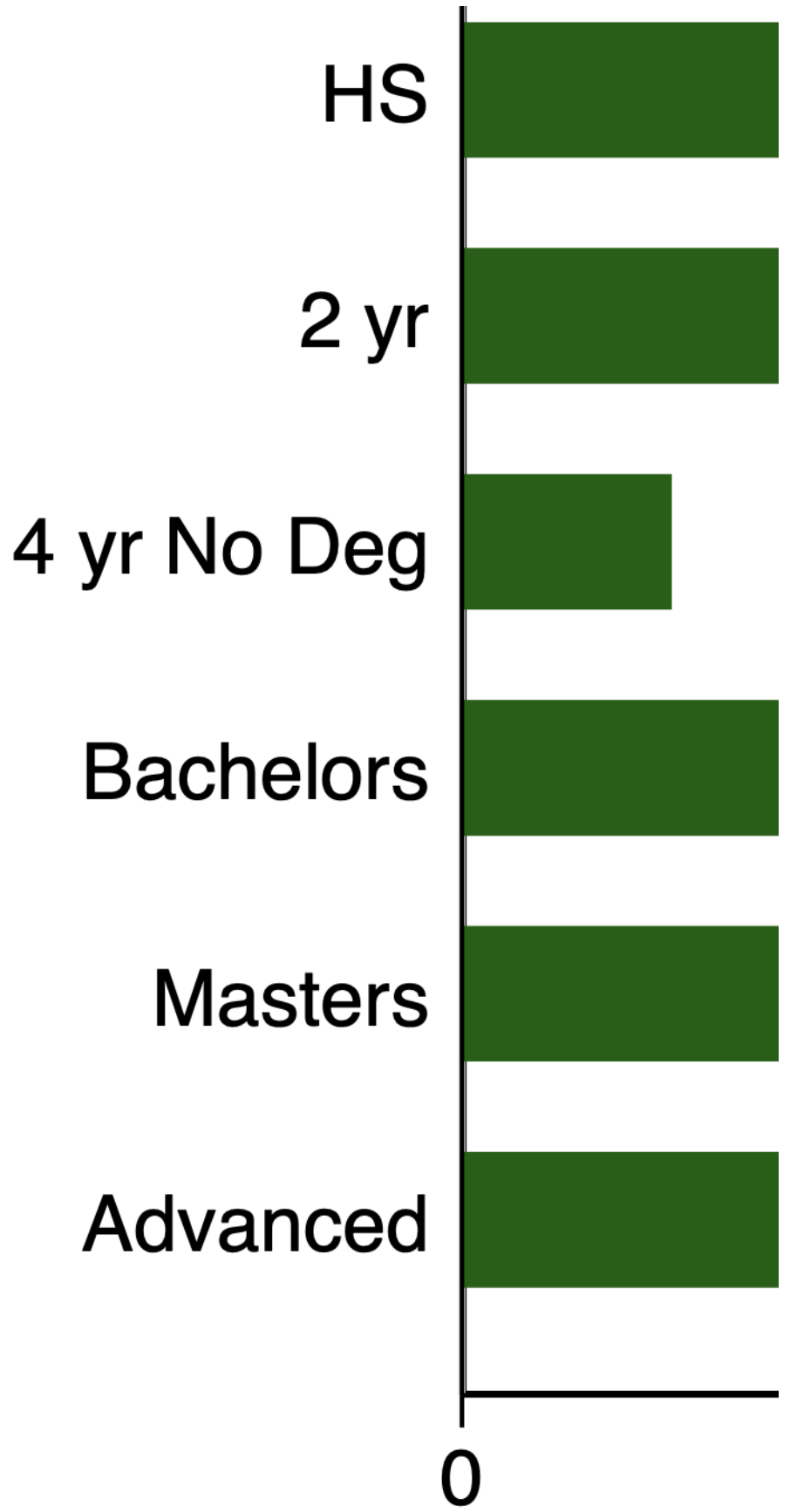
```
. catplot bystexp, name(cat1, replace)

. graph export cat1.png, name(cat1) replace
(file /Users/doylewr/lpo_prac/lessons/s1-11-more_graphics/cat1.png written in PNG format)
```

how far in school student thinks will

HS

2 yr

4 yr No Deg

Bachelors

Masters

Advanced

0

Where catplot can really come into its own is when using two categorical variables, for example plotting expectations by sex.

```
. catplot bystexp, over(bysex) name(cat2, replace) blabel(bar,format(%9.2f)) percent

. graph export cat2.png, name(cat2) replace
(file /Users/doylewr/lpo_prac/lessons/s1-11-more_graphics/cat2.png written in PNG format)
```

!()[cat2.png]

You can also include weights (here I'm using importance weights)

```
. catplot bystexp2 [iw=bystuwt], over(bysex2) ///
                                 name(cat2, replace) ///
                                 blabel(bar,format(%9.1f)) ///
                                 percent ///
                                 ytitle("")  ///
                                 note("")

. graph export expectations1.png  , replace
(file /Users/doylewr/lpo_prac/lessons/s1-11-more_graphics/expectations1.png written in PNG format)
```

The "yvars" trick

If you use the options yvars, then you can individually manipulate each different element of the bar graph.

```
. catplot bystexp2, over(bysex2) ///                              asyvars ///                              bar(1, bcolor(blue*.5)) ///
```

Schemes

There are a wide variety of different schemes. Don't use Stata's default scheme. Really. Please use anything else.

```
. set scheme economist

. catplot bystexp2, over(bysex2) ///                    asyvars


. set scheme s1color
```

Quick Exercise

Create a catplot for plans by ses quartile, using asyvars

Other catplot options

You can order catplots, and combine that with the `asyvars` option

```
. catplot bystexp2 , var1opts(sort(1) descending)

. catplot bystexp , var1opts(sort(1) descending) asyvars
```

You can also recast catplot so that it's another type of plot, in this case a dotplot.

```
. catplot bystexp2 , var1opts(sort(1) descending) recast(dot)
```

Quick Exercise Plot follow up one plabns (f1psepln2) by sex, then recast the results to a dot plot.

CI Plot

CI plot is another add on that can be really useful. As advertised, it plots confidence intervals around estimates.

```
. ciplot bynels2m , by(bystexp2)
```

Quick Exercise change the plot to reading scores by plans and use better points.

```
. cibar bynels2m, over1(bystexp2) over2(bysex2) ciopts(msize(*0))
```

The "collapse" trick

Following up on our previous discussion of the "collapse" trick, you can also use the size of the underlying dot to communicate the proportion of the sample represented within each dot. Here I plot the probablity of attending a four year instituition as a function of socio economic status.

```
. local myvar f2ps1sec

. foreach i of numlist -4 -8 -9 { /* Start inner loop */
.              replace `myvar'=. if `myvar'== `i'
.                               } /* End inner loop */
(1,689 real changes made, 1,689 to missing)
(359 real changes made, 359 to missing)
(49 real changes made, 49 to missing)

. graph twoway scatter foury byses1

. xtile byses_p =byses1, nquantiles(100)

. preserve

. collapse (mean) mean_four=fouryr (count) total_four=fouryr, by(byses_p)
```

```
. graph twoway scatter mean_four byses_p [w=total_four], msymbol(circle_hollow) name(coll_attend)
(analytic weights assumed)
(analytic weights assumed)
(analytic weights assumed)

. restore
                                        4
```

Quick Exercise Plot the probability of attending a two year institution (use f2ps1sec as a starting point) as a function of reading scores.