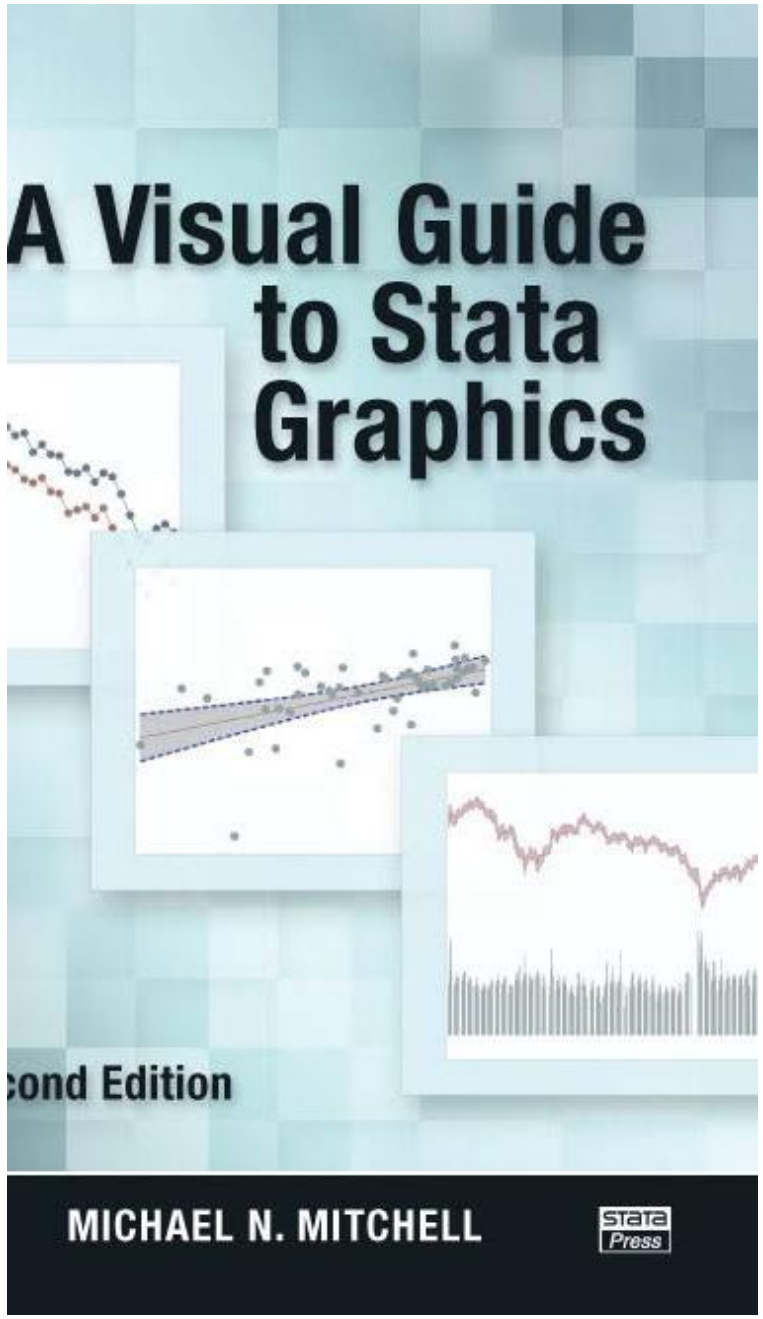
GRAPH DATA

in Stata

Resources

- ***A Visual Guide to Stata Graphics*** Link
- *Microeconometrics Using Stata* Link

- Visual overview for creating graphs Link
- Data visualization cheat sheet Link
- UCLA—Introduction Link
  - Common Options Link
  - Twoway Scatter Link
  - Combo Scatter Link
  - Graphing Dates Link
- SSCC Knowledge Base Link
- FYI—Stata, Speak & Spell Link



Stata YouTube Channel

Project 1

- Data Management Link
- Basic scatterplots in Stata Link

- Stata 14 Video Tutorials Link
- 100 Best Stata Videos Link

Stata Blog

Project 1

- How to create animated graphics using Stata Link
- Graphs, maps, and geocoding

Added

- Functions & marker symbols Link
- Combining charts Link
- Color palette Link

Lab 4 & Project 1

Intro Stata

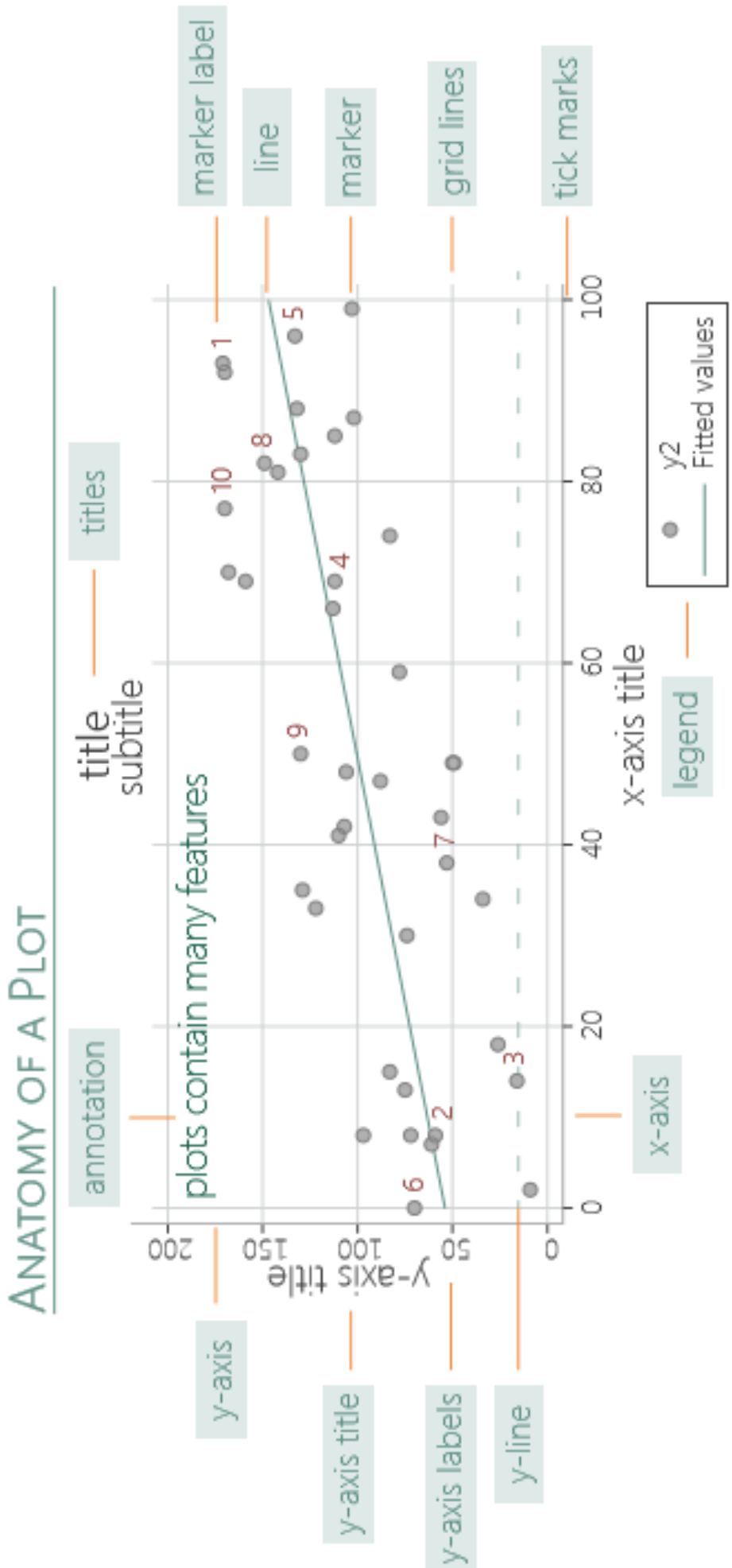
Learning Goals

- Use clean data
- Graph Gapminder data
- Loop over years
- Graph export

Plotting in Stata 14.1

Customizing Appearance

For more info see Stata's reference manual (stata.com)



Twoway

- [graph] **twoway** *plot* [if] [in] [, twoway_options]

***Plot* type**	**Descriptions**
scatter	Scatterplot
line	Line plot
area	Line plot with shading
bar	Bar plot
histogram	Histogram plot

Example

UCLA

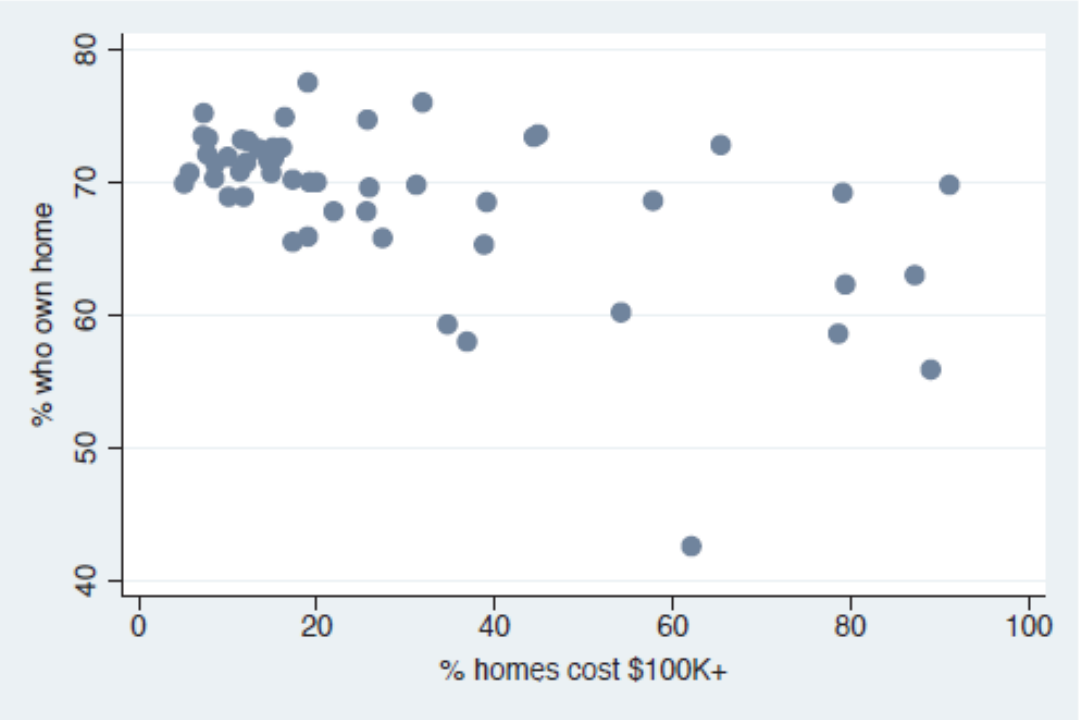
References

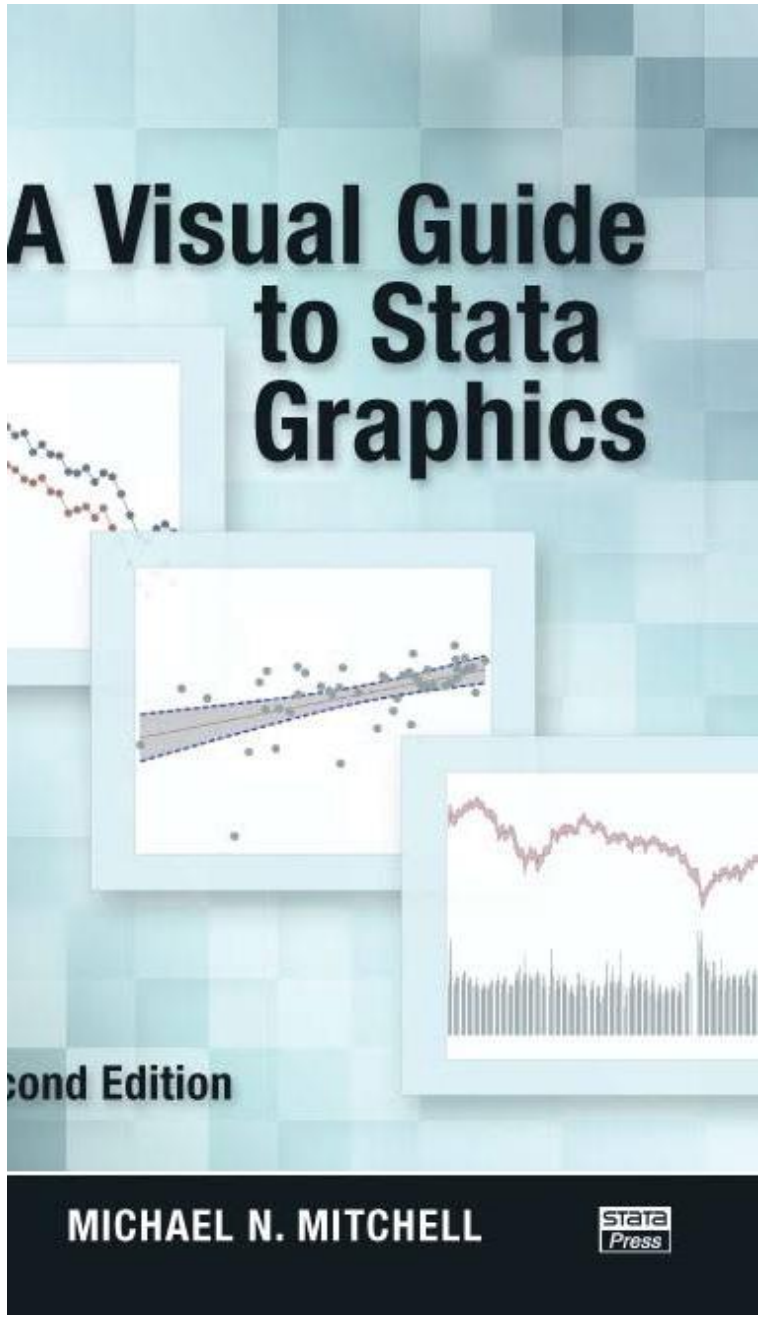
Princeton SSC

Example 1

pg.35-39

```
graph twoway scatter ownhome propval100
```

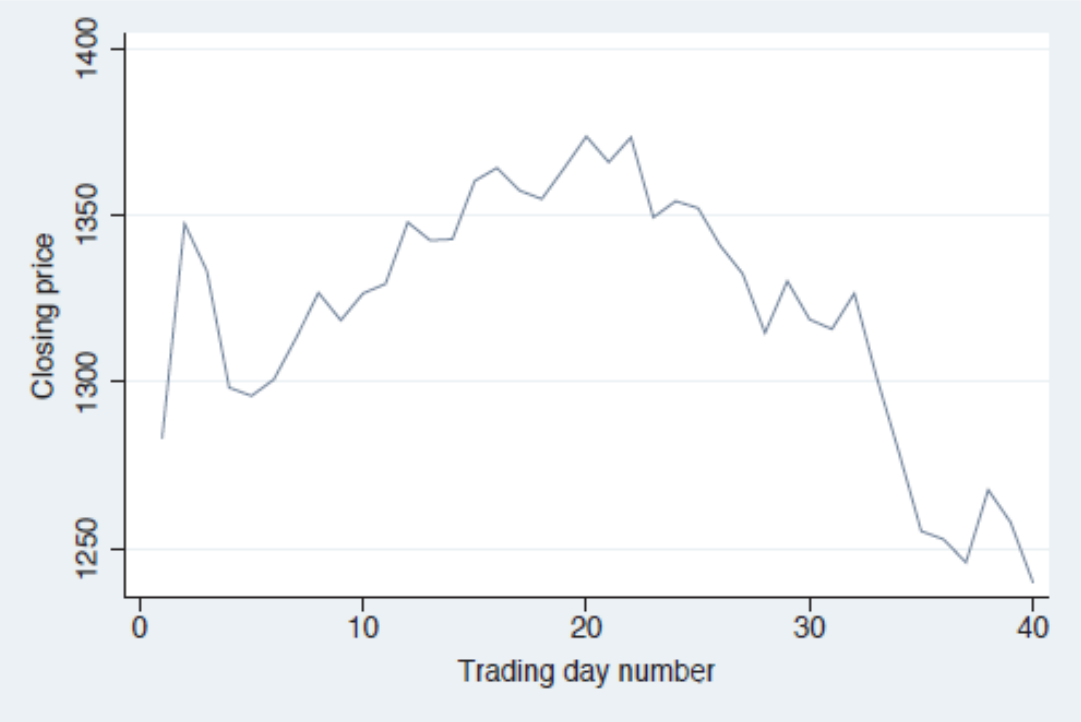


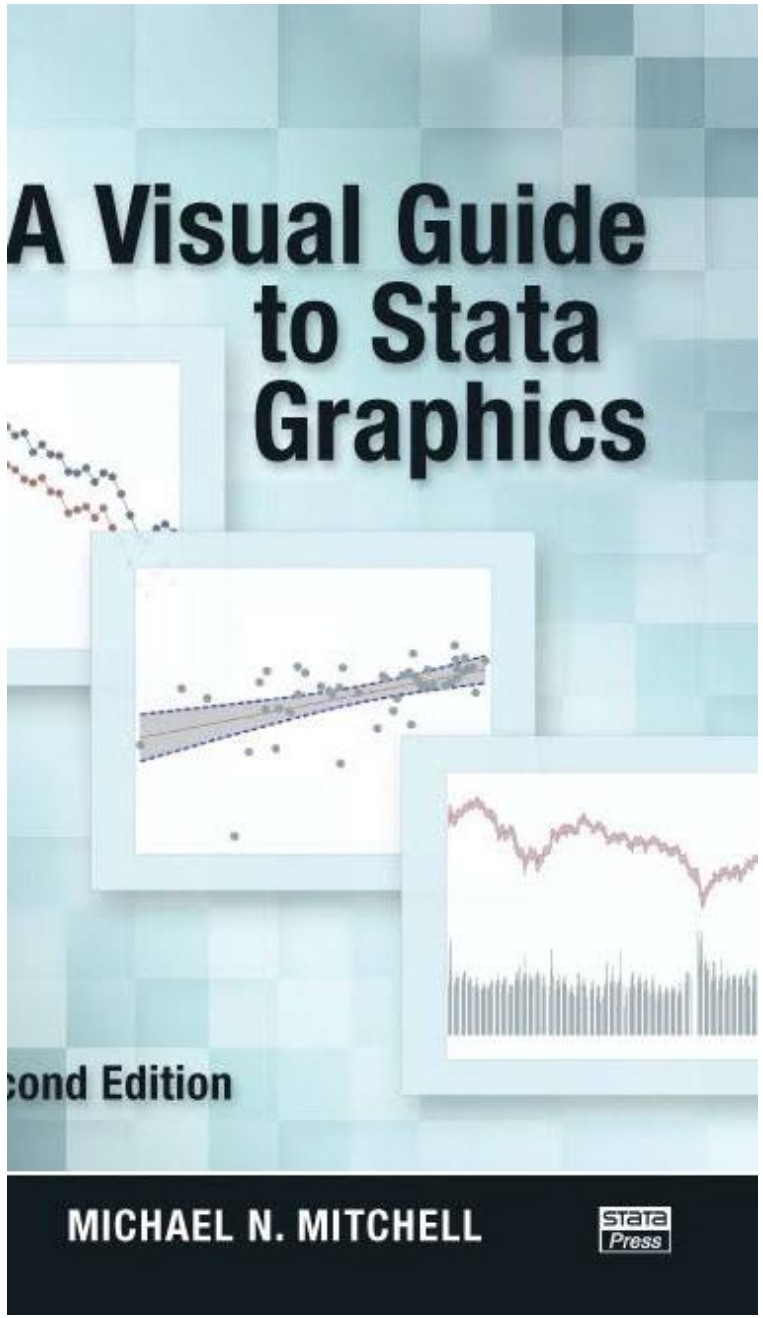


Example 2

pg.54-60

```
twoway line close tradeday, sort
```

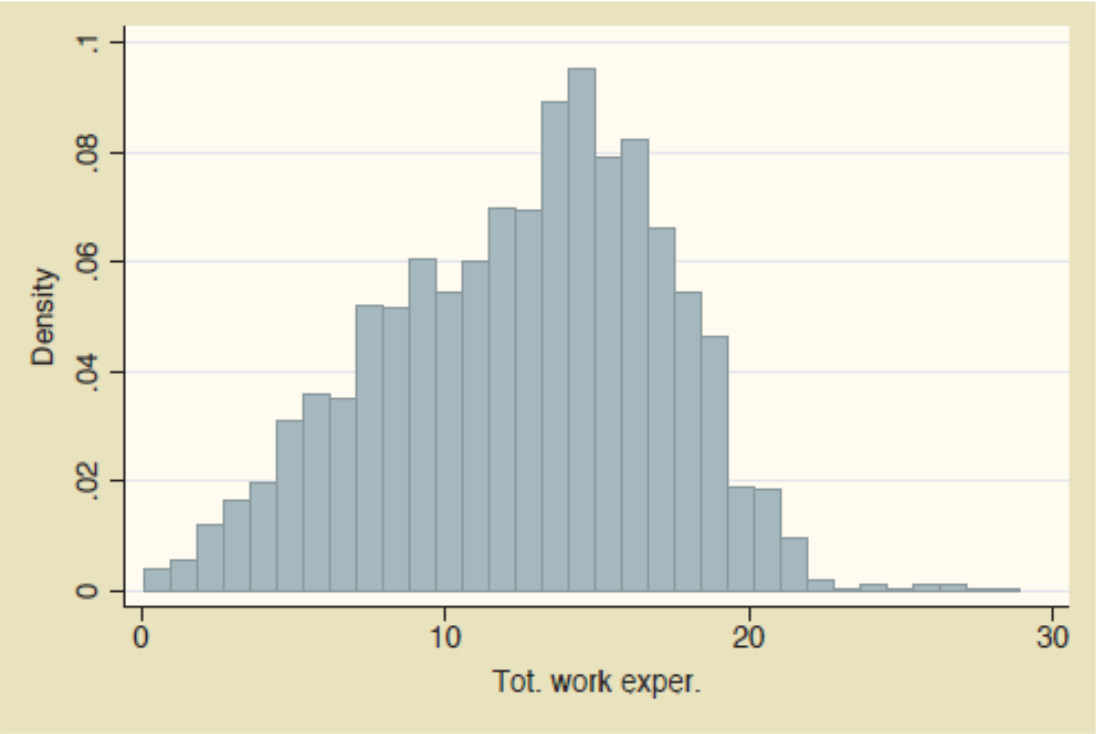


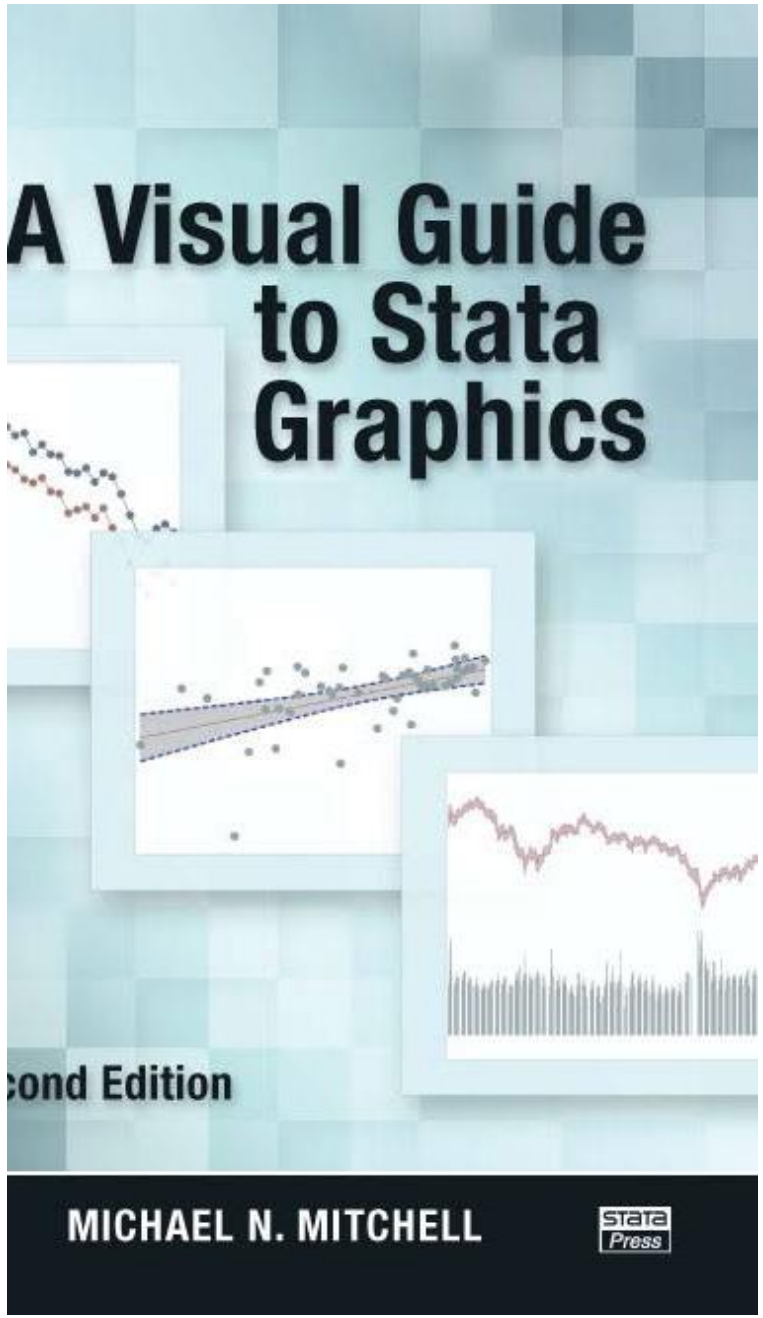


Example 3

pg.74-82

```
twoway histogram ttl_exp
```

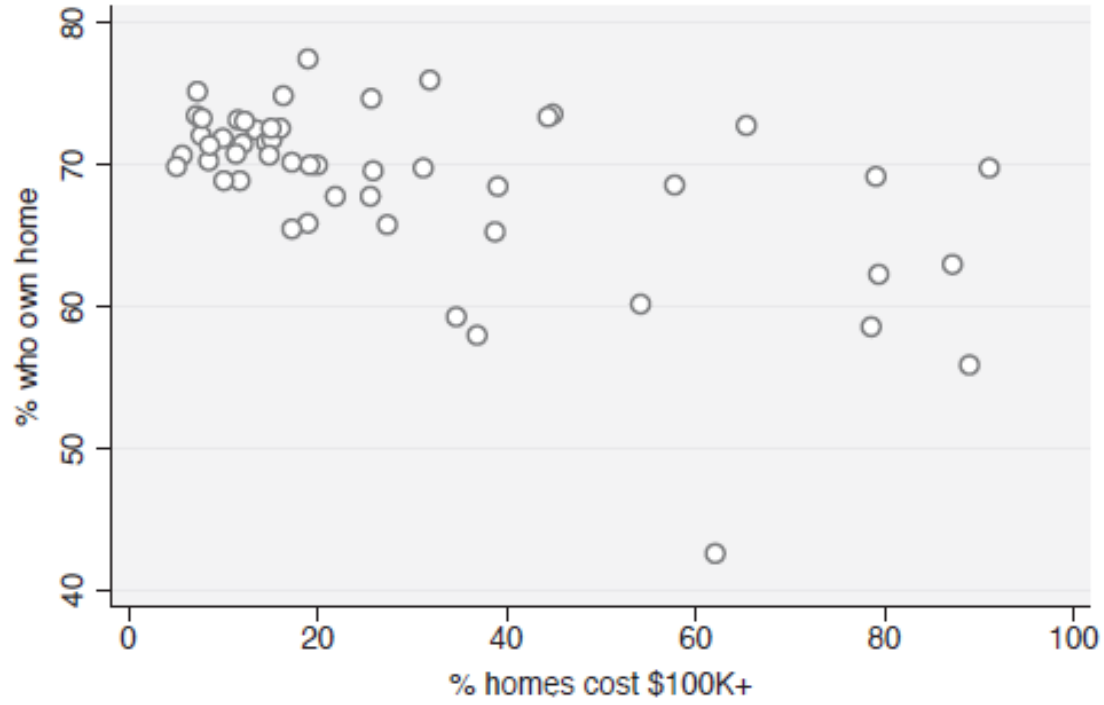


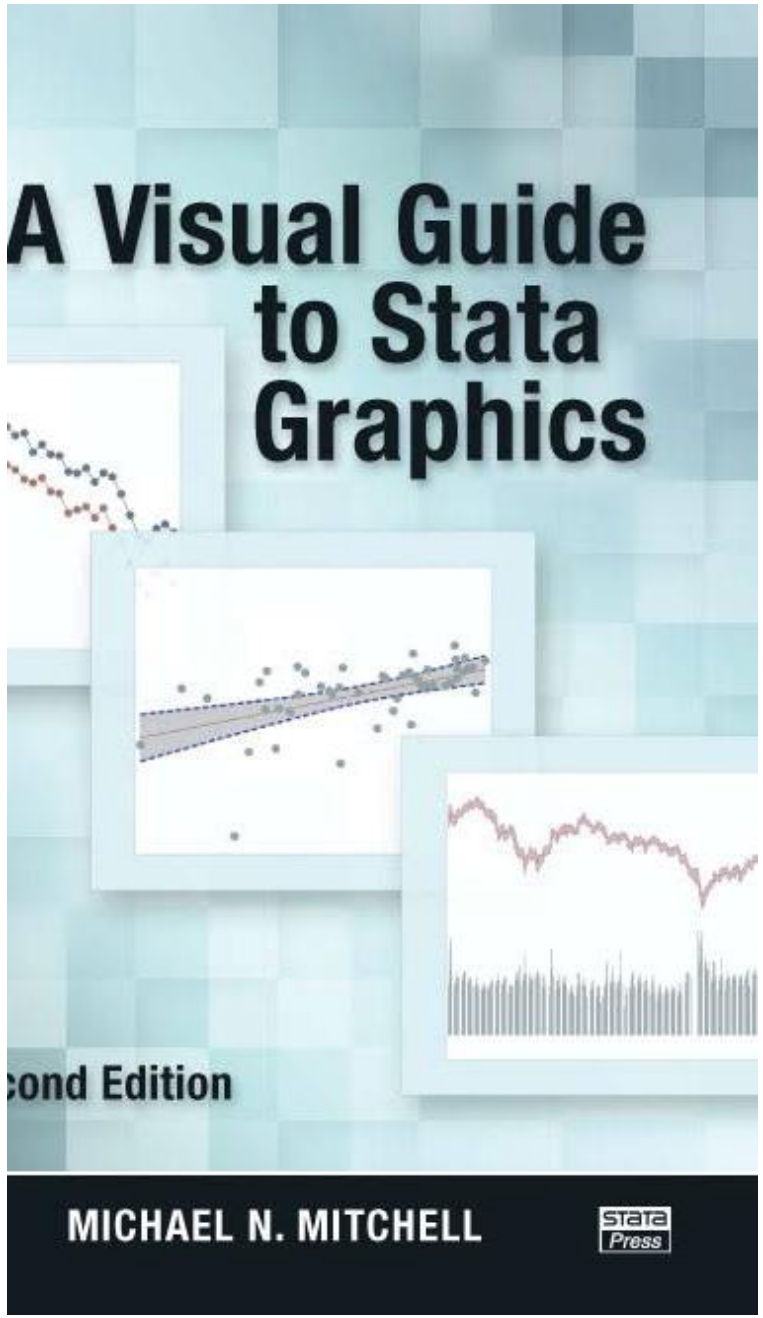


Options

pg.82-86

```
twoway scatter ownhome propval100
```

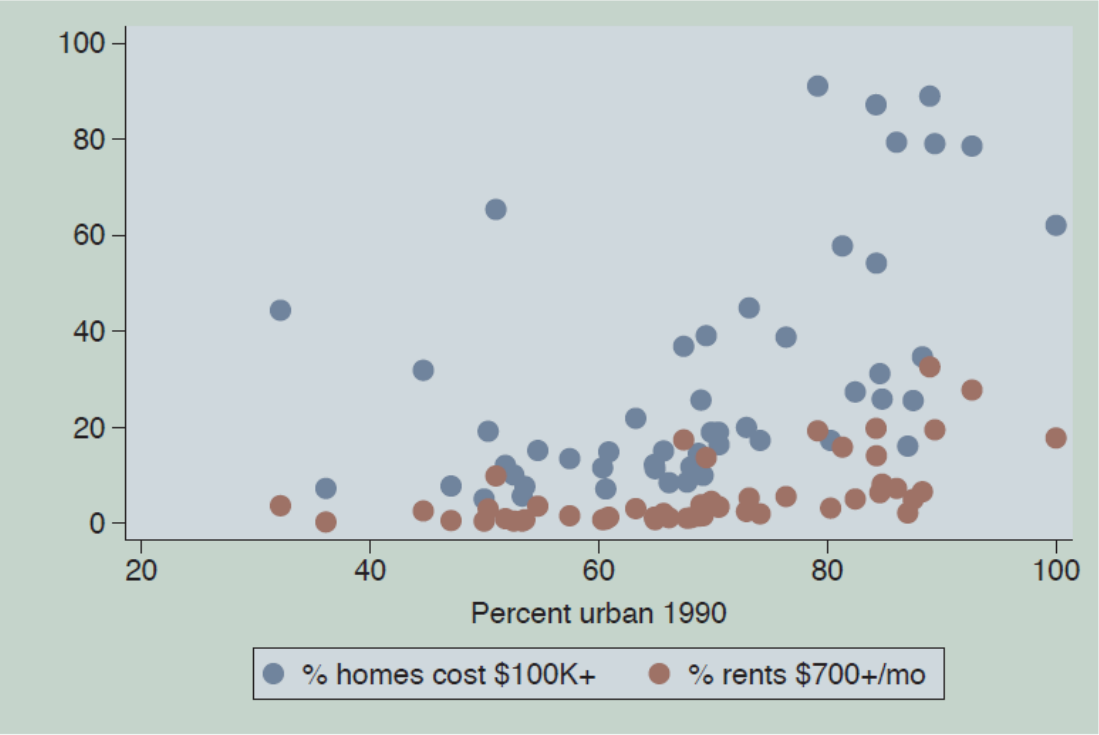


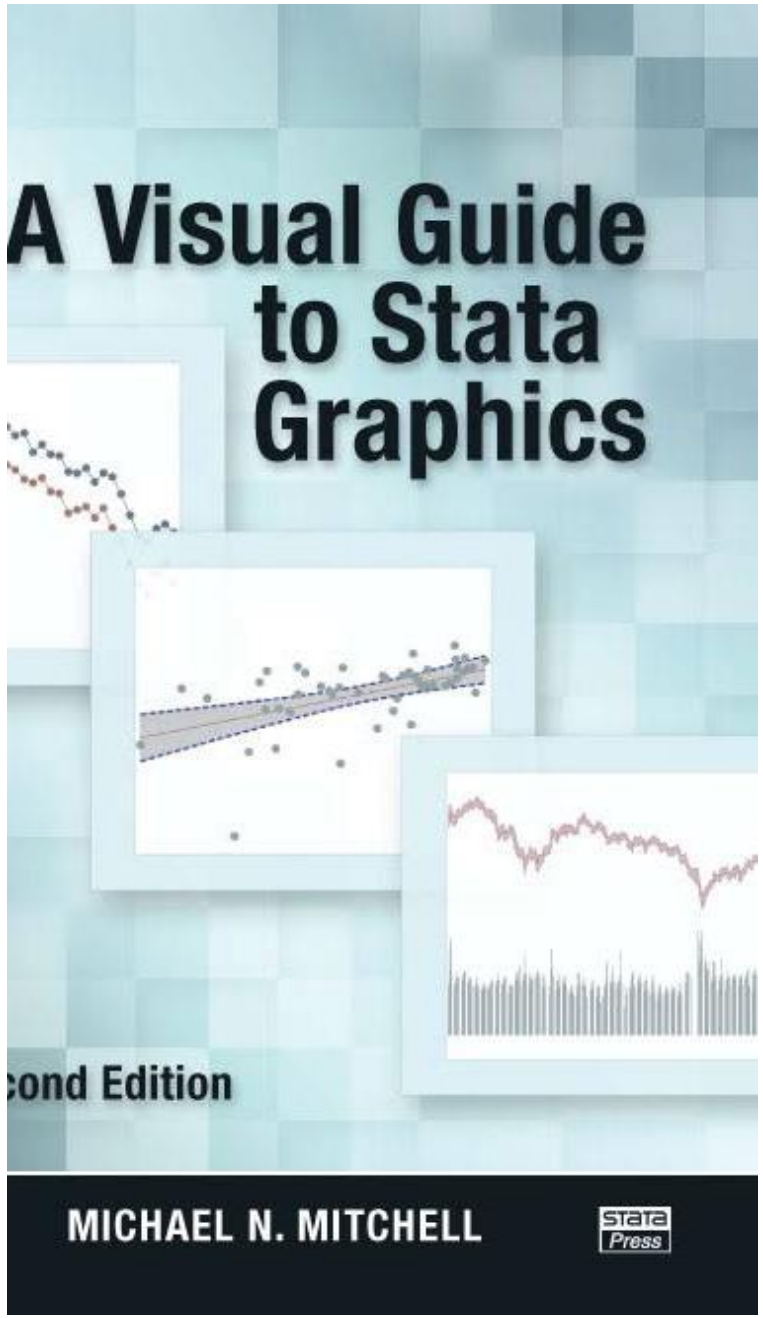


Overlay

pg.87-94

```
twoway scatter propval100 rent700 urban
```

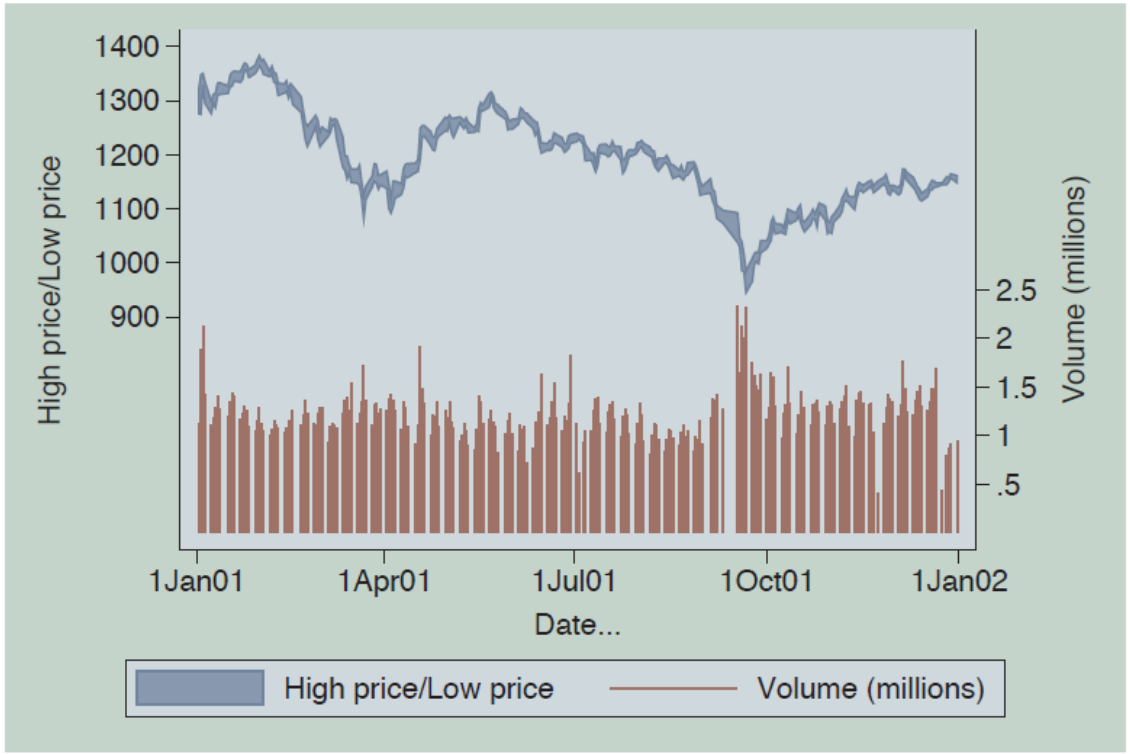


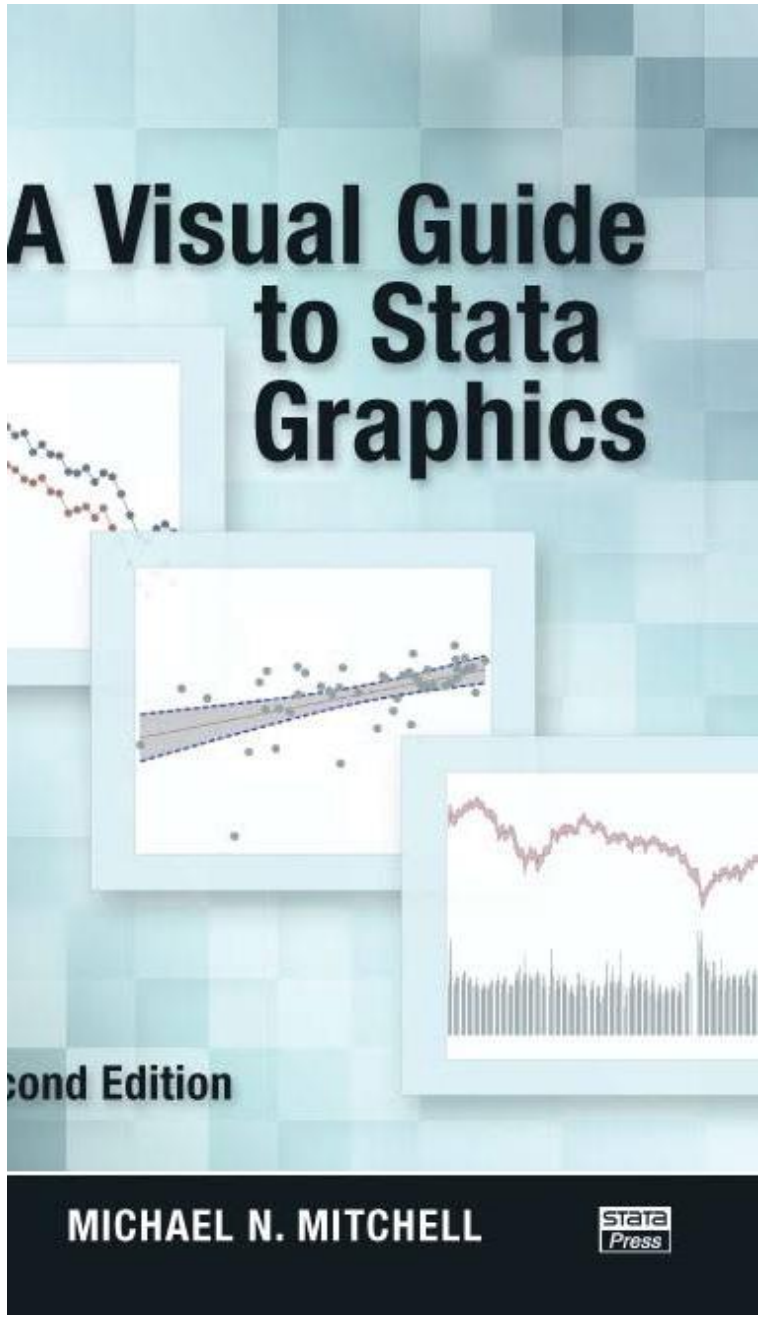


Overlay

pg.87-94

```
twoway (rarea high low date) (spike volmil date, yaxis(2)),
   legend(span) yscale(range(500 1400) axis(1)) yscale(range(0 5) axis(2))
```

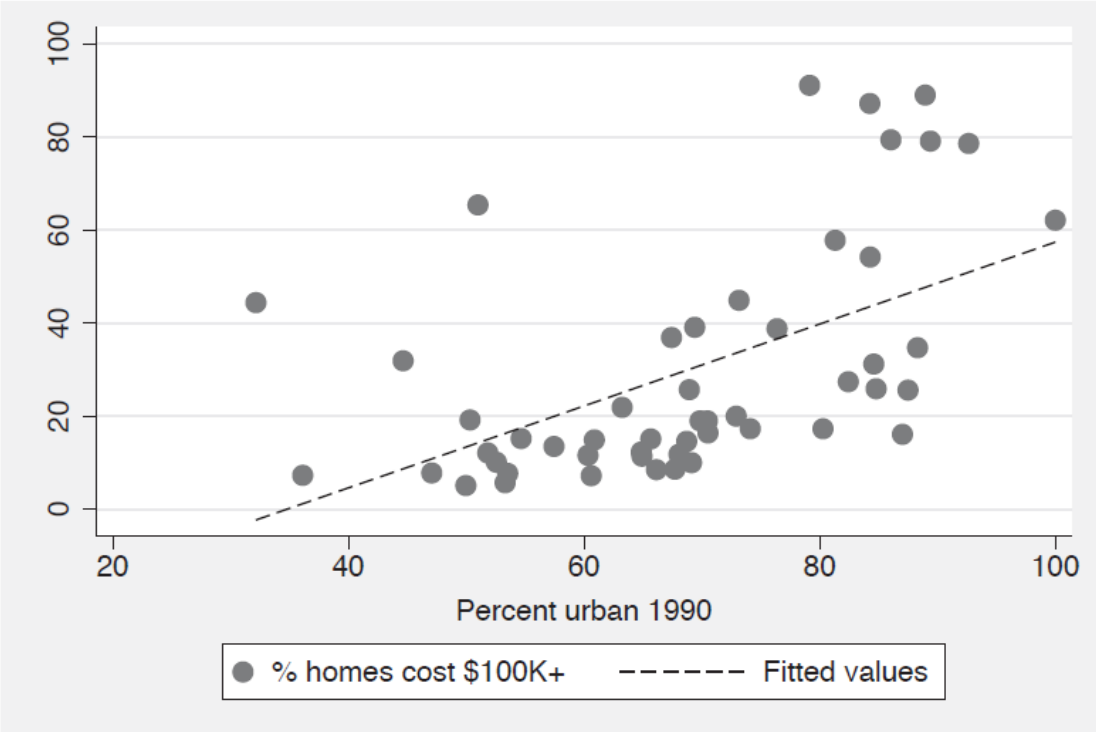


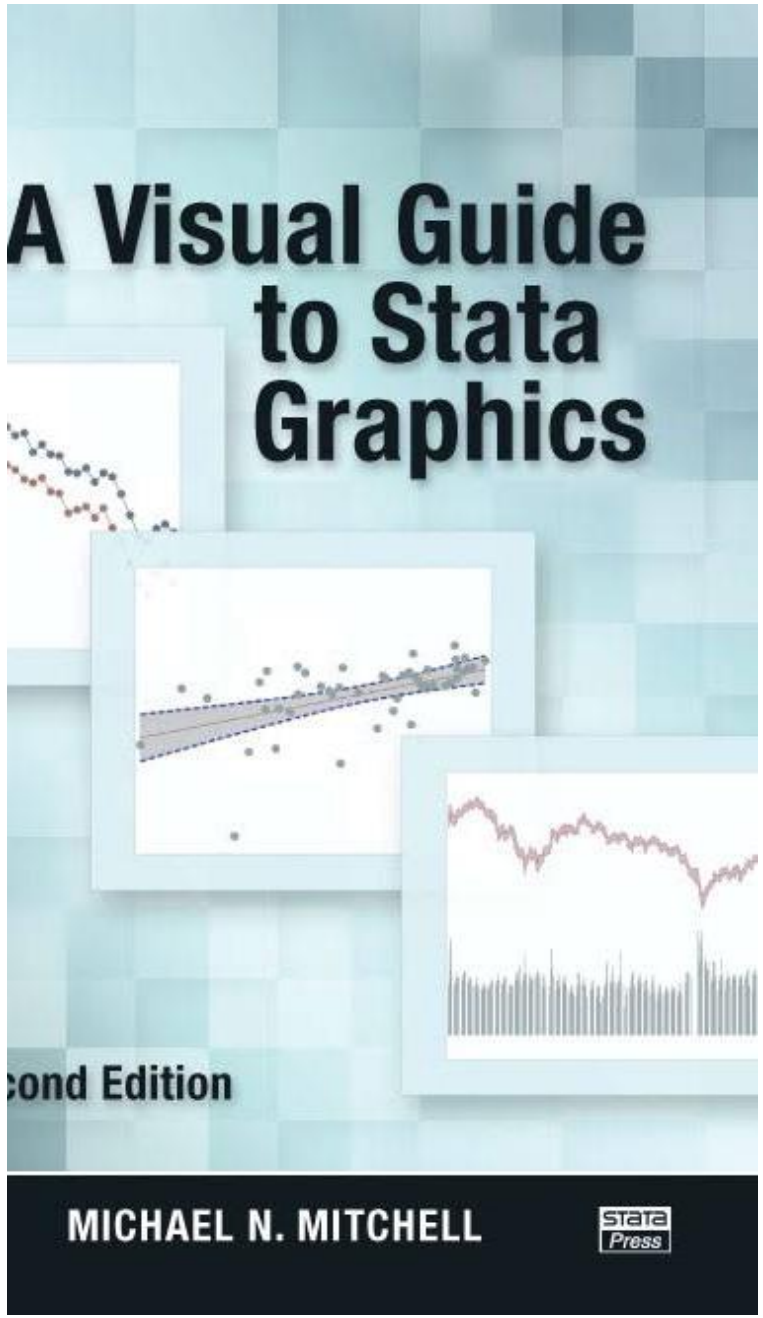


Overlay

pg.87-94

```
twoway scatter propval100 urban || lfit propval100 urban
```





help twoway

Title

[G-2] graph twoway — Twoway graphs

Syntax

[graph] twoway plot [if] [in] [, *twoway_options*]

where the syntax of plot is

[(] plottype *varlist* ..., *options* [)] [||]

plottype	Description	
scatter	scatterplot	Main
line	line plot	
connected	connected-line plot	
scatteri	scatter with immediate arguments	
area	line plot with shading	
bar	bar plot	Other
spike	spike plot	
dropline	dropline plot	
lfit	linear prediction plot	
qfit	quadratic prediction plot	
fpfit	fractional polynomial plot	
lfitci	linear prediction plot with CIs	
function	line plot of function	
histogram	histogram plot	
kdensity	kernel density plot	

graph twoway scatter — Twoway scatterplots

twoway_options	Description
added_line_options	draw lines at specified *y* or *x* values
added_text_options	display text at specified (*y*,*x*) value
axis_options	labels, ticks, grids, log scales
title_options	titles, subtitles, notes, captions
legend_options	legend explaining what means what
scale(#)	resize text and markers
region_options	outlining, shading, aspect ratio
aspect_option	constrain aspect ratio of plot region
scheme(*schemename*)	overall look
play(*recordingname*)	play edits from *recordingname*
by(*varlist*, ...)	repeat for subgroups
nodraw	suppress display of graph
name(*name*, ...)	specify name for graph
saving(*filename*, ...)	save graph in file
advanced_options	difficult to explain

See [G-3] *twoway_options*.

aweights, fweights, and pweights are allowed; see weight.

help scatter

Title

[G-2] graph twoway scatter — Twoway scatterplots

Syntax

[twoway] scatter *varlist* [*if*] [*in*] [*weight*] [, *options*]

where *varlist* is
y_1 [*y_2* [...]] *x*

options	Description
marker_options	change look of markers (color, size, etc.)
marker_label_options	add marker labels; change look or position
connect_options	change look of lines or connecting method
composite_style_option	overall style of the plot
jitter_options	jitter marker positions using random noise
axis_choice_options	associate plot with alternate axis
twoway_options	titles, legends, axes, added lines and text, by, regions, name, aspect

marker_options	Description		
msymbol(*symbolstylelist*)	shape of marker	*	Key
mcolor(*colorstylelist*)	color of marker, inside and out	*	
msize(*markersizestylelist*)	size of marker		
mfcolor(*colorstylelist*)	inside or "fill" color		
mlcolor(*colorstylelist*)	color of outline		
mlwidth(*linewidthstylelist*)	thickness of outline		
mlstyle(*linestylelist*)	overall style of outline		
mstyle(*markerstylelist*)	overall style of marker		

See [G-3] *marker_options*.

marker_label_options	Description		
mlabel(*varlist*)	specify marker variables	*	Key
mlabposition(*clockposlist*)	where to locate label	*	
mlabvposition(*varname*)	where to locate label 2		
mlabgap(*relativesizelist*)	gap between marker and label		
mlabangle(*anglestylelist*)	angle of label		
mlabsize(*textsizestylelist*)	size of label		
mlabcolor(*colorstylelist*)	color of label		
mlabtextstyle(*textstylelist*)	overall style of text		
mlabstyle(*markerlabelstylelist*)	overall style of label		

See [G-3] *marker_label_options*.

Exercise I

Link

Stata Learning Module—Graphics: Overview of Twoway Plots

```
sysuse sp500
graph twoway scatter close date
     ...
graph twoway area close date, sort
     ...
graph twoway lfit read write
graph twoway lfitci read write
     ...
graph twoway histogram read
graph twoway kdensity read
     ...
```

Exercise II

Link

Stata Learning Module—Graphics: Combining Twoway Scatterplots

```
use http://www.ats.ucla.edu/stat/stata/notes/hsb2, clear
     ...
     ...
twoway (scatter read write), by(female)
     ...
twoway (scatter read write) ///
       (scatter math write)
     ...
     ...
     ...
```

Graph export

- **graph export** *newfilename.suffix* [, options]

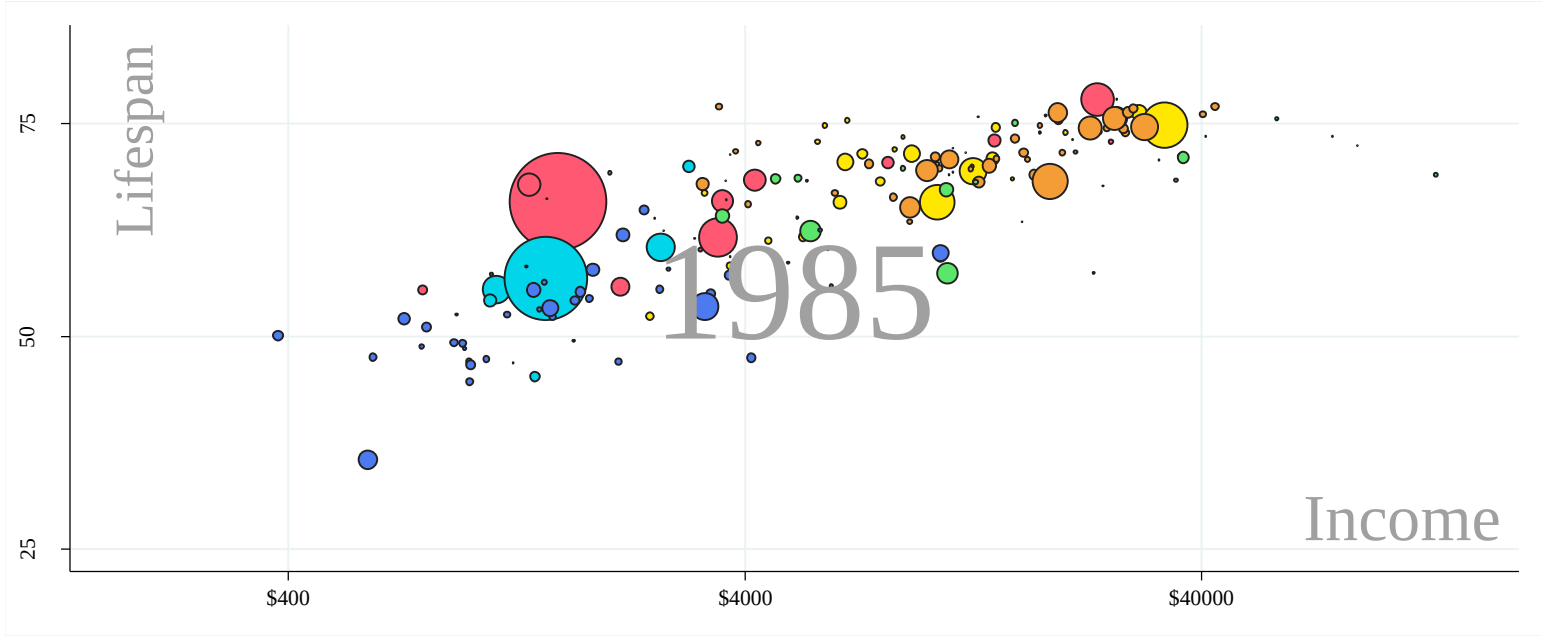
Options	Descriptions
name(window_name)	name of graph window to export
as(file_format)	desired format of output
replace	newfilename may already exist
.suffix	.ps,.eps,.wmf, .emf, .pdf, .png, .tif

Example

UCLA

References

Princeton SSC

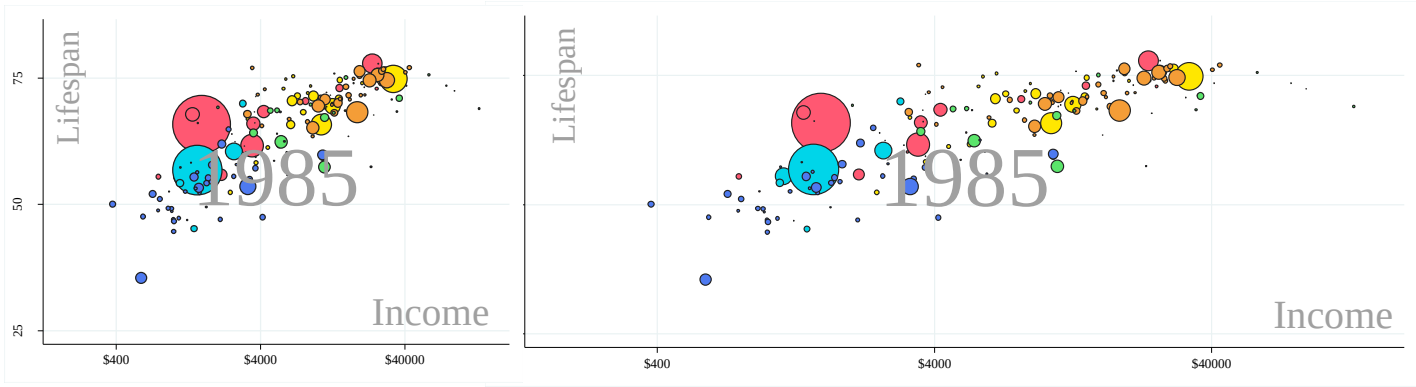


GAPMINDER

in Stata

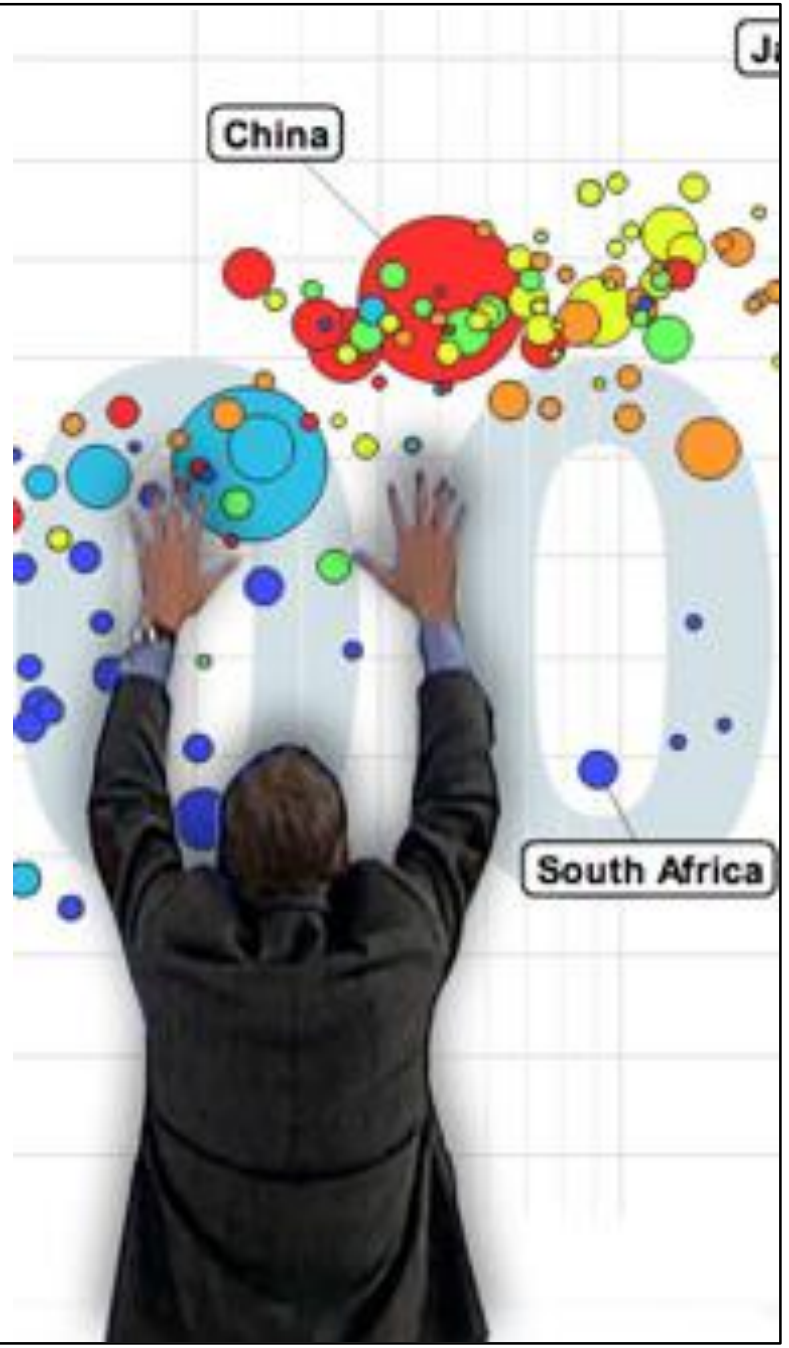
Graph

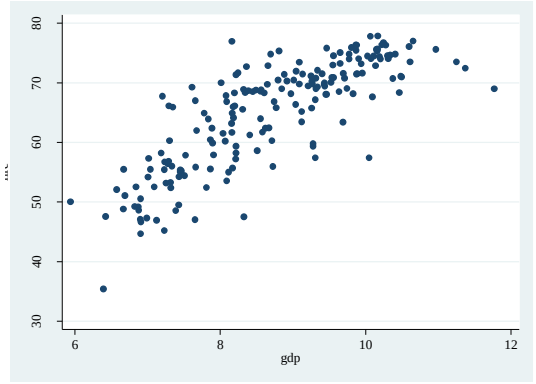
Project 1



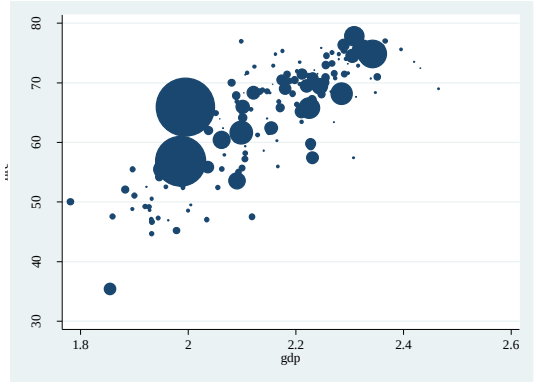
Do-file

- separate life, by(group6)
- tw scatter life? gdp if year==1985 [w=pop] [, options]
- graph export 1985.png, replace

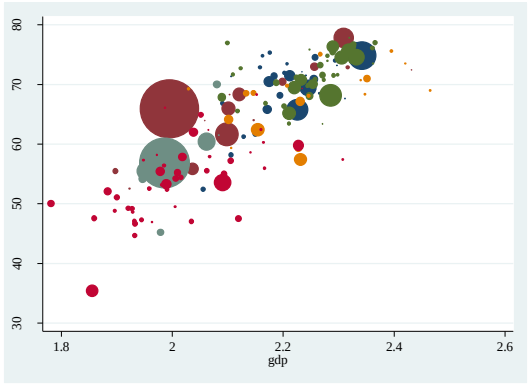




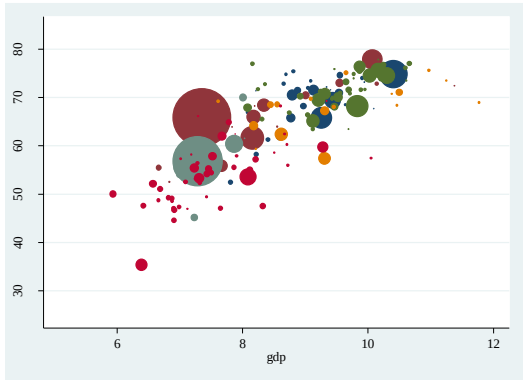
... life gdp if year==**$yr**



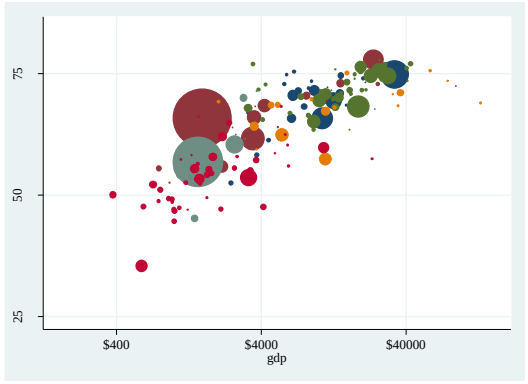
... [w=pop]



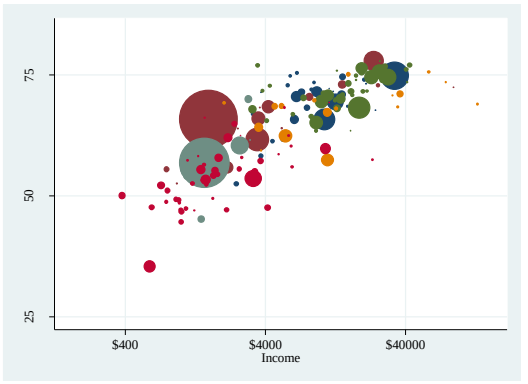
... **life?** gdp if year==$yr ... , legend(off)



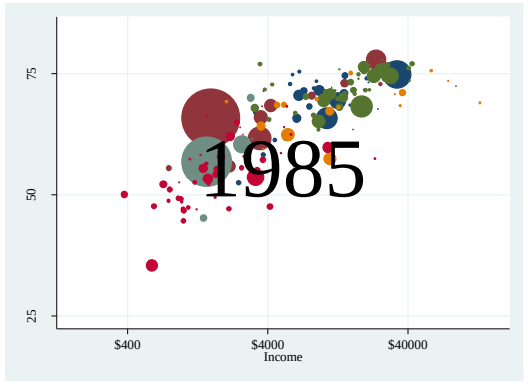
... , xscale(r(4.96 12.12)) ysc(r(24 85)) ///



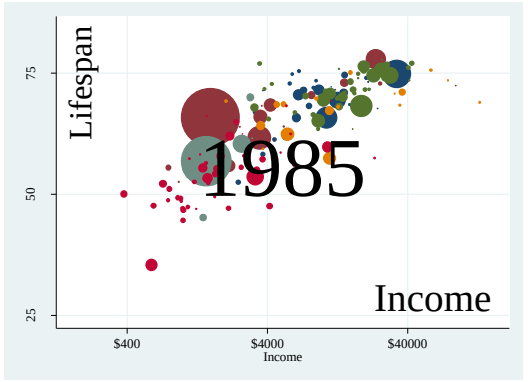
... , xlab(5.99 "$400" 8.29 "$4000" 10.59 "$40000", grid) ylab(25 "25" 50 "50" 75 "75") ///



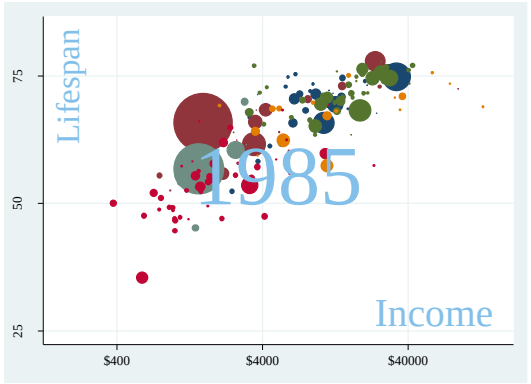
.... xtitle("Income") ytitle("Lifespan") ///



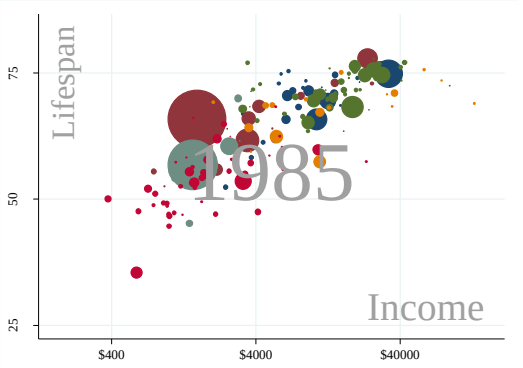
... note("$yr", pos(0) size(*8)) ///



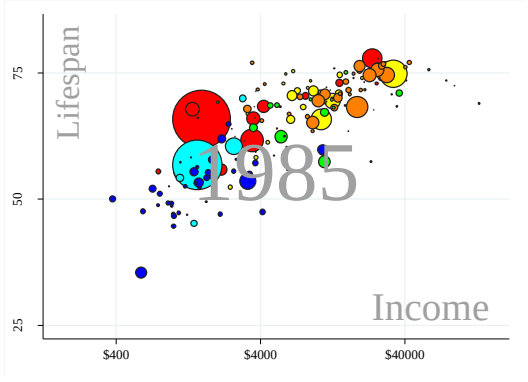
... text(29 11 "Income", size(*3)) ///
text(73 5.2 "Lifespan", size(*2.5)
orient(vertical)) ///

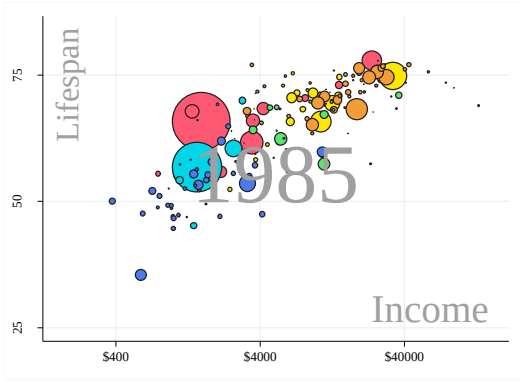


... xtitle("") ytitle("") ///
note(... color(eltblue)) ///

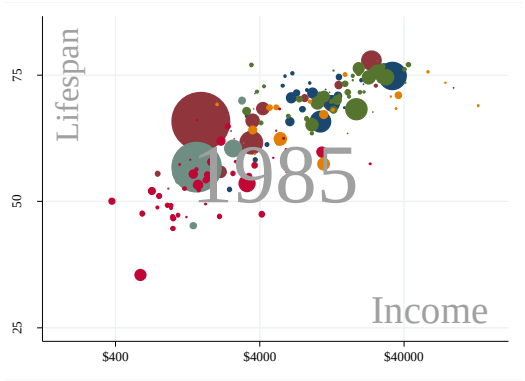


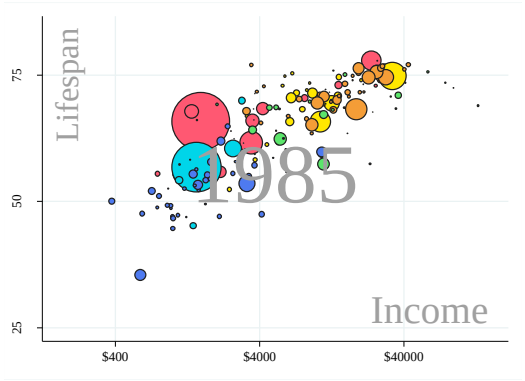
... text(... color(gs10)) ///
graphregion(color(white))

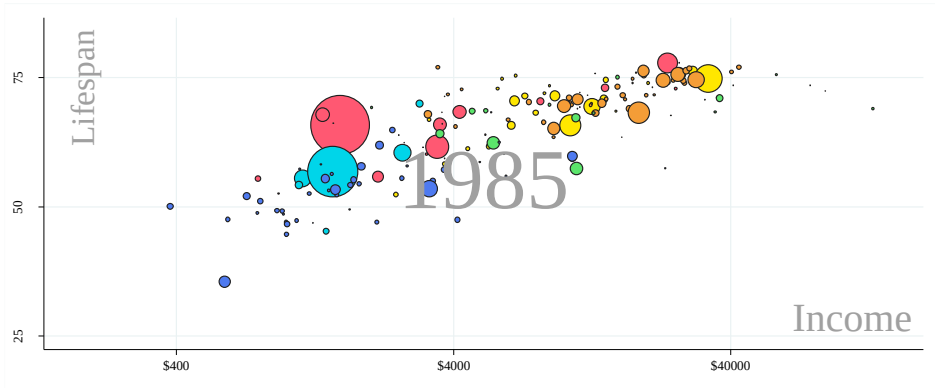




... mcolor("255 231 0" "255 88 114" "244 157 55" "91 229 107" "0 213 233" "78 122 240 ") ///
mlcolor(gs2 gs2 gs2 gs2 gs2 gs2) ///








```
twoway scatter life? gdp if year==$yr [w=pop],                          ///
        xscale(r(4.96 12.12)) ysc(r(24 85))                             ///
        xlab(5.99 "$400" 8.29 "$4000" 10.59 "$40000", grid)             ///
        ylabel(25  "25" 50 "50" 75 "75")                                ///
        xtitle("") ytitle("")                                           ///
        graphregion(color(white)) ysize(3.3) xsize(8)                   ///
        note("$yr", pos(0) size(*8) color(gs10))                        ///
        text(29 11.6  "Income", size(*3) color(gs10))                   ///
        text(73 5.20 "Lifespan", size(*2.5) orient(vertical) color(gs10))   ///
        mlcolor(gs2 gs2 gs2 gs2 gs2 gs2)                                ///
mcolor("255 231 0" "255 88 114" "244 157 55" "91 229 107" "0 213 233" "78 122 240")   ///
        legend(off)
```

Loop

Project 1

Do-file

- set more off
- forvalues i=1800/2016 {

    tw scatter life? gdp if year==`i' [w=pop] [, options]

    …

    graph export `i'.png, replace

    }