Tips + Tricks with Beamer for Economists

Author A
Somewhere Fancy

Paul Goldsmith-Pinkham
FRBNY

Author C

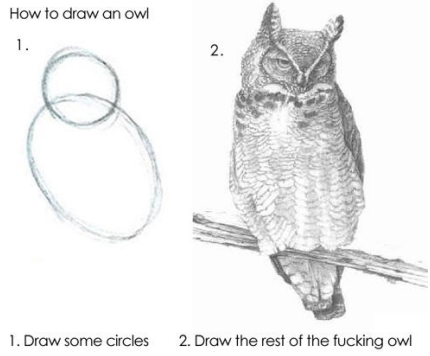
Author D
Somewhere Fancy

March 11, 2019

The views expressed do not necessarily reflect the position of the Federal Reserve Bank of New York or the Federal Reserve System.

Caveats + Structure

- This slide deck has suggestions and ideas for a better presentation
- The goal is minimalist design, but that doesn't mean boring slides
- Making slides is hard work - the goal is to make default set of slides that look nicer and encourage better design
- Read *Jon Schwabish's "Better Presentations"*



Topics to cover

- Spacing and Words
- Color
- Fonts, Text Size and Readibility
- Graphics
- Tables
- Dummy frames to use as starting points
- Misc and options to change
- Making an Appendix!

Spacing and Words

New environments to improve transition and spacing

- Break up sections using `transitionframe` instead of `frame`

```
\begin{transitionframe}
  \begin{center}
    { \Huge \textcolor{black}{Spacing and Words}}
  \end{center}
\end{transitionframe}
```

- Use my `wideitemize` environment instead of `itemize`
  - This environment automatically spaces wide between items
  - That way you don't write too much text on a slide!
  - Rule of thumb 1: 45-75 characters a line
  - Rule of thumb 2: sentence on one line

- If you use 16:9 perspective, use an image on the side!

Aim for simplicity

Better to make one point well on a slide

Than to overwhelm an audience with text

- Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis. Curabitur dictum gravida mauris. Nam arcu libero, nonummy eget, consectetuer id, vulputate a, magna. Donec vehicula augue eu neque. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Mauris ut leo. Cras viverra metus rhoncus sem. Nulla et lectus vestibulum urna fringilla ultrices. Phasellus eu tellus sit amet tortor gravida placerat. Integer sapien est, iaculis in, pretium quis, viverra ac, nunc. Praesent eget sem vel leo ultrices bibendum. Aenean faucibus. Morbi dolor nulla, malesuada eu, pulvinar at, mollis ac, nulla. Curabitur auctor semper nulla. Donec varius orci eget risus. Duis nibh mi, congue eu, accumsan eleifend, sagittis quis, diam. Duis eget orci sit amet orci dignissim rutrum.
  Nam dui ligula, fringilla a, euismod sodales, sollicitudin vel, wisi. Morbi auctor lorem non justo. Nam lacus libero, pretium at, lobortis vitae, ultricies et, tellus. Donec aliquet, tortor sed accumsan bibendum, erat ligula aliquet magna, vitae ornare odio metus a mi. Morbi ac orci et nisl hendrerit mollis. Suspendisse ut massa. Cras nec ante. Pellentesque a nulla. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Aliquam tincidunt urna. Nulla ullamcorper vestibulum turpis.

Roadmap at every section?

- If you prefer to have a roadmap, use the following code:

```
[fragile]
 \AtBeginSection[]{%
\begin{frame}%
 \frametitle{Roadmap of Talk}%
 \tableofcontents[currentsection] %
\end{frame}%
}
%
```

- This creates a section list at each section marker
- I included it in the header – just uncomment it

Color

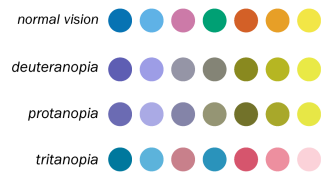
Colorblindness is an issue

conservative 7-color palette adapted for color blindness

Color	Color name	RGB (1–255)	CMYK (%)	P	D
	Black	0, 0, 0	0, 0, 0, 100		
	Orange	230, 159, 0	0, 50, 100, 0		
	Sky blue	86, 180, 233	80, 0, 0, 0		
	Bluish green	0, 158, 115	97, 0, 75, 0		
	Yellow	240, 228, 66	10, 5, 90, 0		
	Blue	0, 114, 178	100, 50, 0, 0		
	Vermillion	213, 94, 0	0, 80, 100, 0		
	Reddish purple	204, 121, 167	10, 70, 0, 0		

Wong, B. (2011) Points of view: Color blindness. Nature Methods 8:441.

SORTED BY SIMILARITY IN DEUTERANOPIA



http://mkweb.bcgsc.ca/colorblind

- The traditional red-blue colors are bad for those who are color blind
- Crib from the above colors!

I use two to three colors regularly throughout my presentations

- I use the blue color everywhere
- I use red to contrast and emphasize
- I use green as a backup
- I use yellow as a transition color

Make your own color wheel palette! `https://www.sessions.edu/color-calculator/`

Background color: I'm undecided

- Changing the background color makes it easier to read
- Make your figures in R or Stata have the same background color
  (Or transparent)
- In large auditoriums, go black background with white text

Example for an auditorium – contrast is much higher

The color code if you can't find it in the source

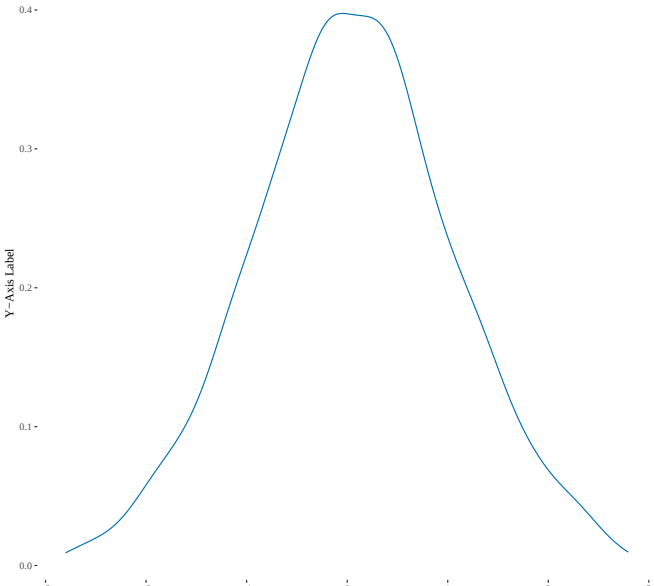
```
% These are my colors -- there are many like them, but these ones are mine.
\definecolor{blue}{RGB}{0,114,178}
\definecolor{red}{RGB}{213,94,0}
\definecolor{yellow}{RGB}{240,228,66}
\definecolor{green}{RGB}{0,158,115}

%% I use a beige off white for my background
\definecolor{MyBackground}{RGB}{255,253,218}

%% Uncomment this if you want to change the background color to something else
\setbeamercolor{background canvas}{bg=MyBackground}

%% Change the bg color to adjust your transition slide background color!
\newenvironment{transitionframe}{\setbeamercolor{background canvas}{bg=yellow}\begin{frame}}{\end{frame}}


\setbeamercolor{frametitle}{fg=blue}
\setbeamercolor{title}{fg=black}
\setbeamertemplate{footline}[frame number]
\setbeamertemplate{navigation symbols}{}
\setbeamercolor{itemize item}{fg=blue}
\setbeamercolor{itemize subitem}{fg=blue}
\setbeamercolor{enumerate item}{fg=blue}
\setbeamercolor{enumerate subitem}{fg=blue}
\setbeamercolor{button}{bg=MyBackground,fg=blue}
```

Text Size, Fonts, and Readability

Text size

- Don’t change the font size to fit the text
- You’re likely putting too much text if you do
- There’s really no excuse:
  - If you need a busy slide, make it a backup
  - Then have a link, and click to it
  - The audience will regret ever doubting you

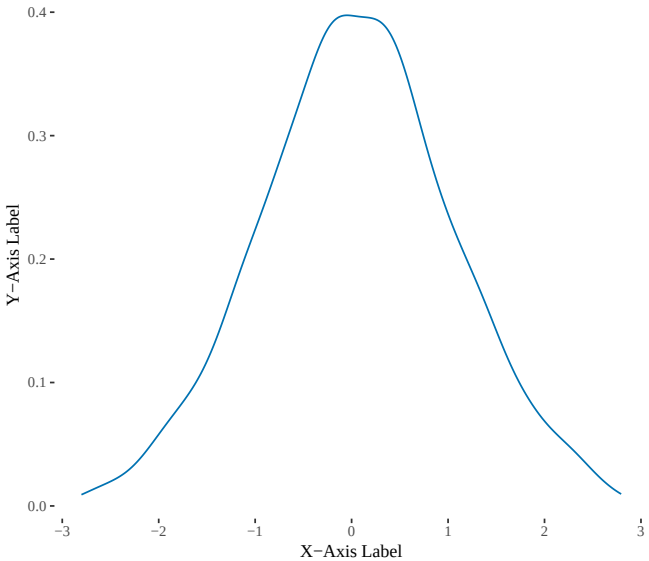
Font size matters for graphs too!



This graph is unreadable!

→ Need to change the font size

Font size matters for graphs too!

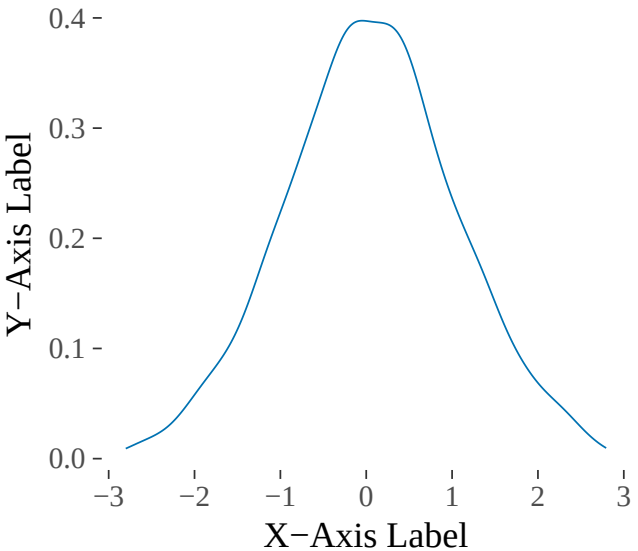


This graph is unreadable!

→ Need to change the font size

Now it looks a little better

Font size matters for graphs too!



This graph is unreadable!

→ Need to change the font size

Now it looks a little better

Much better

Things on your computer look too big but audience will thank you

Change your fonts!

- Changing fonts is easy and productive
- This slide deck uses Lato – you can experiment!
- Here's some comparison to alternatives:

  Lato: the *quick* **brown** fox jumps over the α- dog
  Arial (default): the *quick* **brown** fox jumps over the α- dog
  Bookman: the *quick* **brown** fox jumps over the α- dog
  Helvetica: the *quick* **brown** fox jumps over the α- dog

To change your font globally, you'll need to find the right package:

```
\usepackage[default]{lato}
```

Link for choices: `http://www.tug.dk/FontCatalogue/sansseriffonts.html`

Graphics

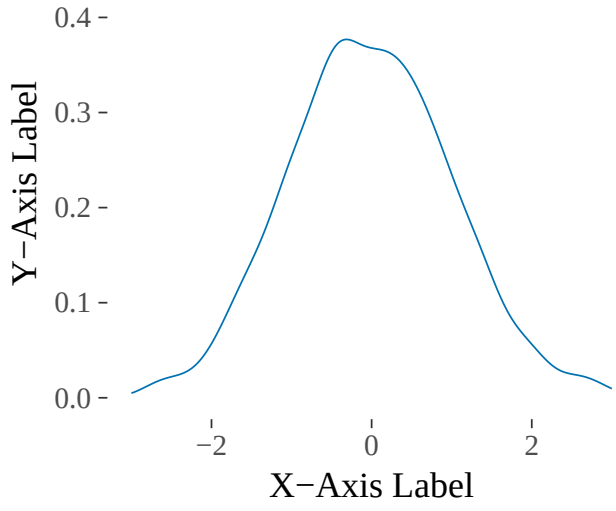
Fitting figures doesn't have to be painful

- Simple commands to fit figures:

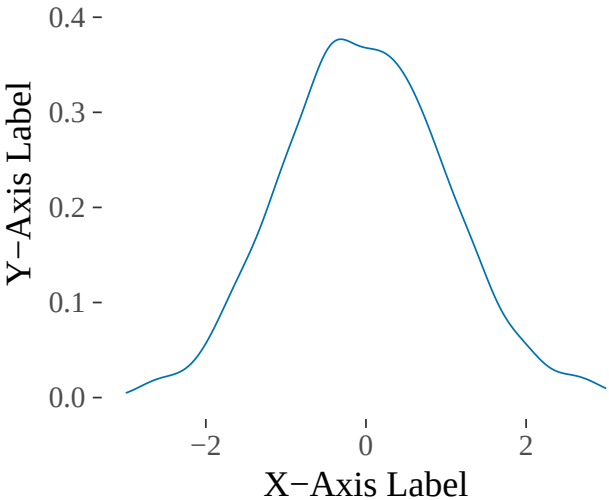
```
\resizebox{0.7\linewidth}{!}{
  \includegraphics{figure1_effect.pdf}}
```

- The `\linewidth` number is defined within an environment
- Simply center with a `center` environment

When possible, make graphic central

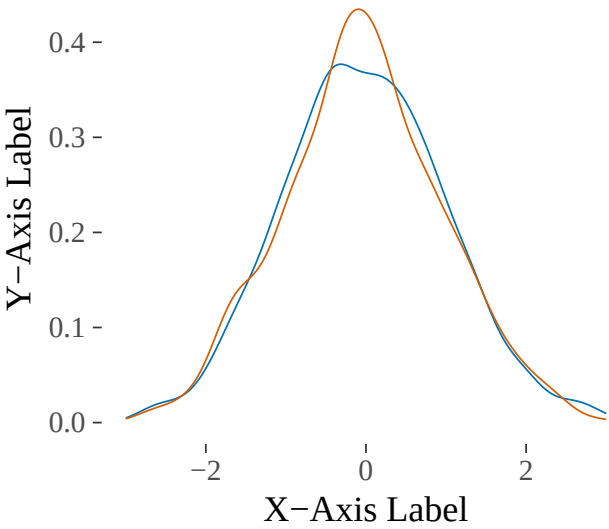


But sometimes iteration is better



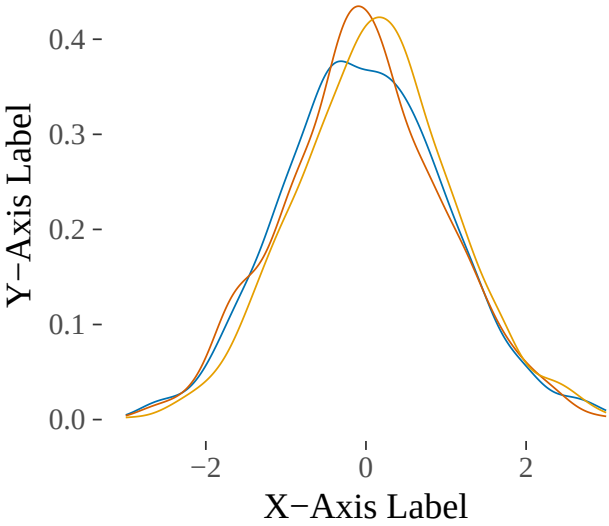
- Sometimes you want to talk about one effect

But sometimes iteration is better



- Sometimes you want to talk about one effect
- Then switch to a second effect

But sometimes iteration is better



- Sometimes you want to talk about one effect
- Then switch to a second effect
- Use the `\only<slidenum>` command
- For the effect, keep the similar axes

Tables

Fitting tables doesn't have to be painful

- Simple commands to fit table and center:

```
\makebox[\linewidth][c]{
\begin{tabular}{l cc ddd}
  results...
\end{tabular}
```

- Don't use the `table` environment
- If you don't want to center, use change `[c]` to `[l]`

Highlight cells using tikz (see source code)

	Mean at	Difference-in-Differences Estimates		
	$t = -1$	1 Year	2 Years	3 Years
	(1)	(2)	(3)	(4)
Outcome 1	2.58	0.11	0.08	0.12
	(2.55)	(0.04)	(0.04)	(0.04)
Outcome 2	60.90	−0.73	−1.13	−1.58
	(17.02)	(0.10)	(0.11)	(0.12)
Outcome 3	18.98	0.77	1.28	1.62
	(6.74)	(0.13)	(0.13)	(0.12)

Highlight cells using tikz (see source code)

	Mean at	Difference-in-Differences Estimates		
	$t = -1$	1 Year	2 Years	3 Years
	(1)	(2)	(3)	(4)
Outcome 1	2.58	0.11	0.08	0.12
	(2.55)	(0.04)	(0.04)	(0.04)
Outcome 2	60.90	−0.73	−1.13	−1.58
	(17.02)	(0.10)	(0.11)	(0.12)
Outcome 3	18.98	0.77	1.28	1.62
	(6.74)	(0.13)	(0.13)	(0.12)

Reveal rows sequentially using `\onslide` (see source code)

Mean at	Difference-in-Differences Estimates		
$t = -1$	1 Year	2 Years	3 Years
(1)	(2)	(3)	(4)

There are other ways to do this

Consider whether it is better to have all the context, or control

If you haven't practiced, the clicking through slides will be artificial

Reveal rows sequentially using `\onslide` (see source code)

	Mean at	Difference-in-Differences Estimates		
	$t = -1$	1 Year	2 Years	3 Years
	(1)	(2)	(3)	(4)
Outcome 1	2.58	0.11	0.08	0.12
	(2.55)	(0.04)	(0.04)	(0.04)

There are other ways to do this

Consider whether it is better to have all the context, or control

If you haven't practiced, the clicking through slides will be artificial

Reveal rows sequentially using `\onslide` (see source code)

	Mean at	Difference-in-Differences Estimates		
	$t = -1$	1 Year	2 Years	3 Years
	(1)	(2)	(3)	(4)
Outcome 1	2.58	0.11	0.08	0.12
	(2.55)	(0.04)	(0.04)	(0.04)
Outcome 2	60.90	−0.73	−1.13	−1.58
	(17.02)	(0.10)	(0.11)	(0.12)

There are other ways to do this

Consider whether it is better to have all the context, or control

If you haven't practiced, the clicking through slides will be artificial

Reveal rows sequentially using `\onslide` (see source code)

	Mean at	Difference-in-Differences Estimates		
	$t = -1$	1 Year	2 Years	3 Years
	(1)	(2)	(3)	(4)
Outcome 1	2.58	0.11	0.08	0.12
	(2.55)	(0.04)	(0.04)	(0.04)
Outcome 2	60.90	−0.73	−1.13	−1.58
	(17.02)	(0.10)	(0.11)	(0.12)
Outcome 3	18.98	0.77	1.28	1.62
	(6.74)	(0.13)	(0.13)	(0.12)

There are other ways to do this

Consider whether it is better to have all the context, or control

If you haven't practiced, the clicking through slides will be artificial

Reveal columns sequentially using `\onslide` (see source code)

	Mean at	Difference-in-Differences Estimates		
	$t = -1$	1 Year	2 Years	3 Years
	(1)	(2)	(3)	(4)
Outcome 1	2.58	0.11		
	(2.55)	(0.04)		
Outcome 2	60.90	−0.73		
	(17.02)	(0.10)		
Outcome 3	18.98	0.77		
	(6.74)	(0.13)		

This is a bit more difficult to get working every time, but can be very nice

Just don't overuse it

You can even talk about your results down here!

Reveal columns sequentially using `\onslide` (see source code)

	Mean at	Difference-in-Differences Estimates		
	$t = -1$	1 Year	2 Years	3 Years
	(1)	(2)	(3)	(4)
Outcome 1	2.58	0.11	0.08	
	(2.55)	(0.04)	(0.04)	
Outcome 2	60.90	−0.73	−1.13	
	(17.02)	(0.10)	(0.11)	
Outcome 3	18.98	0.77	1.28	
	(6.74)	(0.13)	(0.13)	

This is a bit more difficult to get working every time, but can be very nice

Just don't overuse it

You can even talk about your results down here!

Reveal columns sequentially using `\onslide` (see source code)

	Mean at	Difference-in-Differences Estimates		
	$t = -1$	1 Year	2 Years	3 Years
	(1)	(2)	(3)	(4)
Outcome 1	2.58	0.11	0.08	0.12
	(2.55)	(0.04)	(0.04)	(0.04)
Outcome 2	60.90	−0.73	−1.13	−1.58
	(17.02)	(0.10)	(0.11)	(0.12)
Outcome 3	18.98	0.77	1.28	1.62
	(6.74)	(0.13)	(0.13)	(0.12)

This is a bit more difficult to get working every time, but can be very nice

Just don't overuse it

You can even talk about your results down here!

Dummy Frames

Here’s a list of frames that are similar to powerpoint frames

- Just copy and paste the source code

Two Column Frame

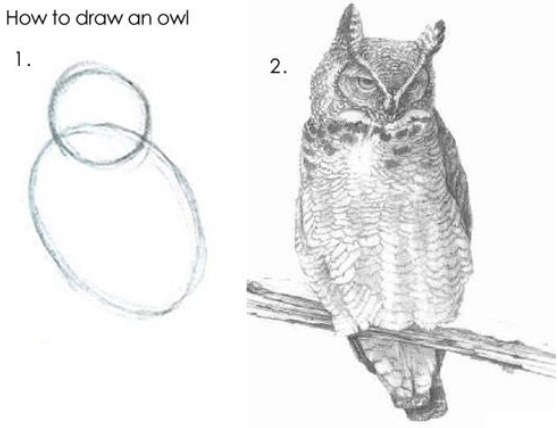
Column 1

Column 2

Table Frame

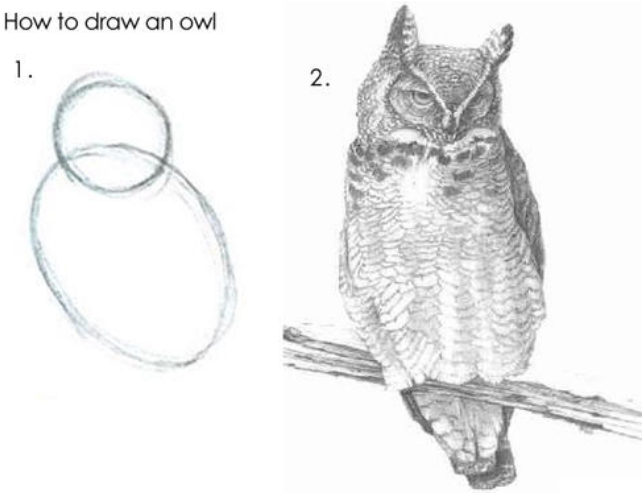
Temp Table

Figure Frame



1. Draw some circles 2. Draw the rest of the fucking owl

Figure with Commentary Frame

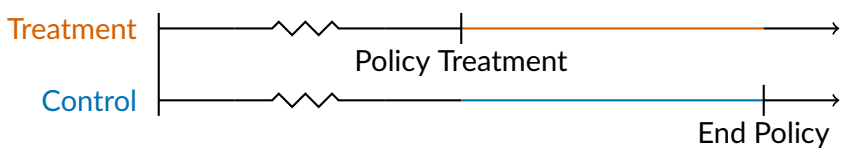


- Everyone gives these tips on nice presentations
- But maybe we'd put less on the slides
- If the audience stopped interrupting

Miscellaneous + Options

Make TikZ figures to help highlight your research design

- Previously used tikz commands to highlight things in figures and tables
- You can make much cooler figures with this
- Here's an example for showing diff-in-diff timing:



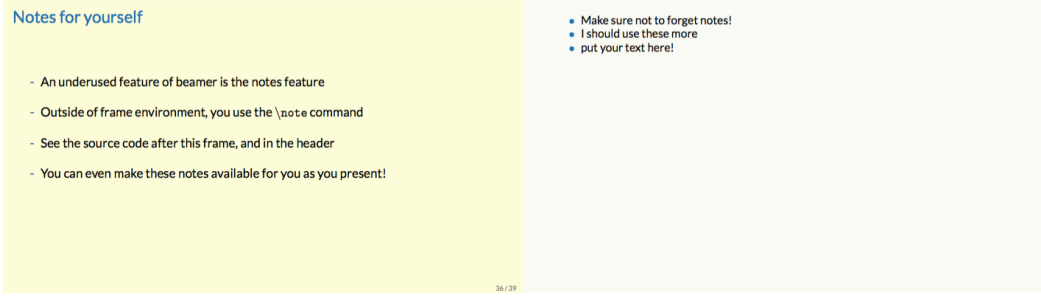
Consider making your math prettier

- Don't overdo it when putting up equations (either regressions or theorems)
- Try adding color and text to highlight the relevant formula
- Consider (Imbens and Angrist 1994):

$$\alpha_g^{IV} = \underbrace{Cov(Y, g(Z))}_{\text{Reduced Form}} \Big/ \underbrace{Cov(D, g(Z))}_{\text{First Stage}}$$

Notes for yourself

- An underused feature of beamer is the notes feature
- Outside of frame environment, you use the `\note` command
- See the source code after this frame, and in the header
- You can even make these notes available for you as you present!



Sizing / perspective on frame

- Thanks to Casey Wichman, these slides are in beautiful 16:9
- If you don't want that, just remove the `aspectratio` option in the document class
- But, it will be hard to put stuff next to pictures
- It's much more modern looking in 16:9

Appendix!

Almost done!

- Use the `\appendix` command to restart the numbering
- The frame counter says this is the last slide, but it's not
- (Test it, see you on next page)

Almost done!

- See, now we're in backup slide land
- This is made useful by having links throughtout the talk
- Here's a button, which is how I make links ▸ Next slide

Use it to intimidate audiences!

Now you can make it clear you've done a shitload of work
without having to show everything! Back

You label a frame with the `[label=name]` option, and then point a link to it

You can make an object a link using the `\hyperlink{label}{object}` command