Making Slides using `Rmd`

Output to html and pdf

Your Name
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Background

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Today

- Welcome! Sample code can be found here.
- AAA: *Why are we here?* Think!
- BBB: *What are we doing?* Think!
- `Rmd`: Rmd is *powerful*.

Upcoming

- Learn more `Rmd`.
- Build momentum.

Long run

Goal: Deepen understandings for `markdown`, `html` and `css`.

What is the `Rmd`?

`Rmd` helps us make

- ABC
- EFG
- HIJ

It will probably be hard to get used to it at the beginning, but will be worth in the future.

Repeat. It will probably be hard to get used to it at the beginning, but will be worth in the future.

Practice

What is it?

The R project website:

> R is a free software environment for statistical computing and graphics. It compiles and runs on a wide variety of UNIX platforms, Windows and MacOS.

What does that mean?

- R was created for the statistical and graphical work required by econometrics.
- R has a vibrant, thriving online community (*e.g.*, Stack Overflow).
- Plus it's **free** and **open source**.

Regression and causality

First, we need to generate some data.

```
# Set seed
set.seed(12345)
# Set sample size
n ← 1e4

# Generate data
ex_df ← tibble(
  female = rep(c(0, 1), each = n/2),
  grad = runif(n, min = female/3, max = 1) %>% round(0),
  wage = 100 - 25 * female + 5 * grad + rnorm(n, sd = 3)
)
```

Regression and causality

Now we can estimate our naïve regression

$$\text{Wage}_i = \alpha + \beta \text{Grad}_i + \varepsilon_i$$

```
lm(wage ~ grad, data = ex_df)
```

	Coef.	S.E.	t stat
Intercept	91.65	0.20	447.70
Graduate	-1.59	0.26	-6.18

Regression and causality

Now we can estimate our causal regression

$$\mathrm{Wage}_i = \alpha + \beta_1 \mathrm{Grad}_i + \beta_2 \mathrm{Female}_i + \varepsilon_i$$

```
lm(wage ~ grad + female, data = ex_df)
```

	Coef.	**S.E.**	**t stat**
Intercept	99.98	0.05	1868.81
Graduate	5.03	0.06	78.23
Female	-25.00	0.06	-402.64

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We use gapminder data.

```
library(gapminder)
dat ← gapminder %>%
  group_by(year, continent) %>%
  summarise(`Life Expectancy` = mean(lifeExp),
            Population = sum(as.numeric(pop))) %>%
  rename(Year = year, Continent = continent)
```

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```
ggplot(dat, aes(Year, `Life Expectancy`, color = Continent)) +
  geom_point() + theme_bw()
```