

# In-person session 2

**January 18, 2024**

PMAP 8521: Program evaluation  
Andrew Young School of Policy Studies

# Plan for today

**Files, folders, and projects**

**Transforming data with {dplyr}**

**Regression, p-values, and null worlds**

# Files, folders, and projects

**Why so much content  
these first two weeks?**

**How much should I be reading?**

# File paths, working directories, and RStudio projects

**.zip files**

# The hyperliterality of computers

## Warnings and messages

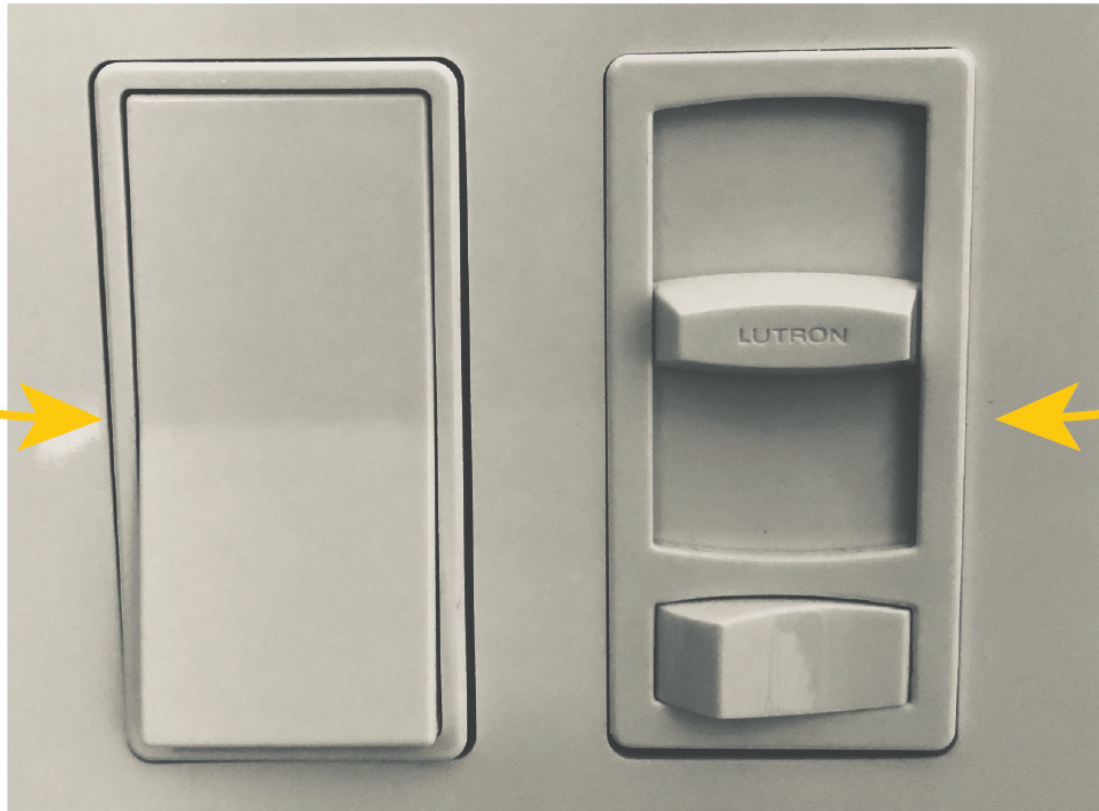


# Quarto tips

# Transforming data with {dplyr}

# Regression with R

**Categorical  
variable**



**Continuous  
variable**



From slides

**Many  
simultaneous  
continuous  
variables**



**Many  
simultaneous  
categorical  
variables**

# Regression equations

**And is the intercept ever useful,  
or should we always ignore it?**

**Why use two steps to create a regression in R?  
(i.e. assigning it to an object with `<-`?)**

**Why use `tidy()`  
from the broom package?**

**How was the 0.05 significance threshold determined?**

**Could we say something is significant if  $p > 0.05$ , but just note that it is at a higher p-value?**

**Or does it have to fall under 0.05?**



**Why all this convoluted  
logic of null worlds?**



## 5-Minute Healthy Oatmeal

Fit Foodie Finds

4.6 ★★★★★ (93)

10 min



## Basic Oatmeal Recipe

Del's cooking twist

5.0 ★★★★★ (1)

15 min



FeelGoodFoodie

<https://feelgoodfoodie.net> › [recipe](#) › [how-to-make-oat...](#) ⋮

## How to Make Oatmeal

Jan 17, 2019 — Microwave Instructions. Place the **oats**, water and salt in a microwave safe bowl. Heat in the microwave on high for 90 seconds. · Stovetop ...

★★★★★ Rating: 5 · 8,192 votes · 4 min

[Microwave Cooking...](#) · [Stovetop Cooking...](#) · [Healthy Oatmeal Recipes](#)



Downshiftology

<https://downshiftology.com> › ... › [Courses](#) › [Breakfast](#) ⋮

## Easy Oatmeal Recipe

Sep 11, 2023 — Learn how to make **oatmeal** that's hearty and creamy. It's easy to make on the stove or in the microwave - and it's healthy too!

★★★★★ Rating: 5 · 21 votes · 7 min

[Popular Types Of Oatmeal](#) · [How To Make Oatmeal Like A...](#) · [Make Your Oatmeal Taste...](#)



**Do we care about the actual coefficients  
or just whether or not they're significant?**

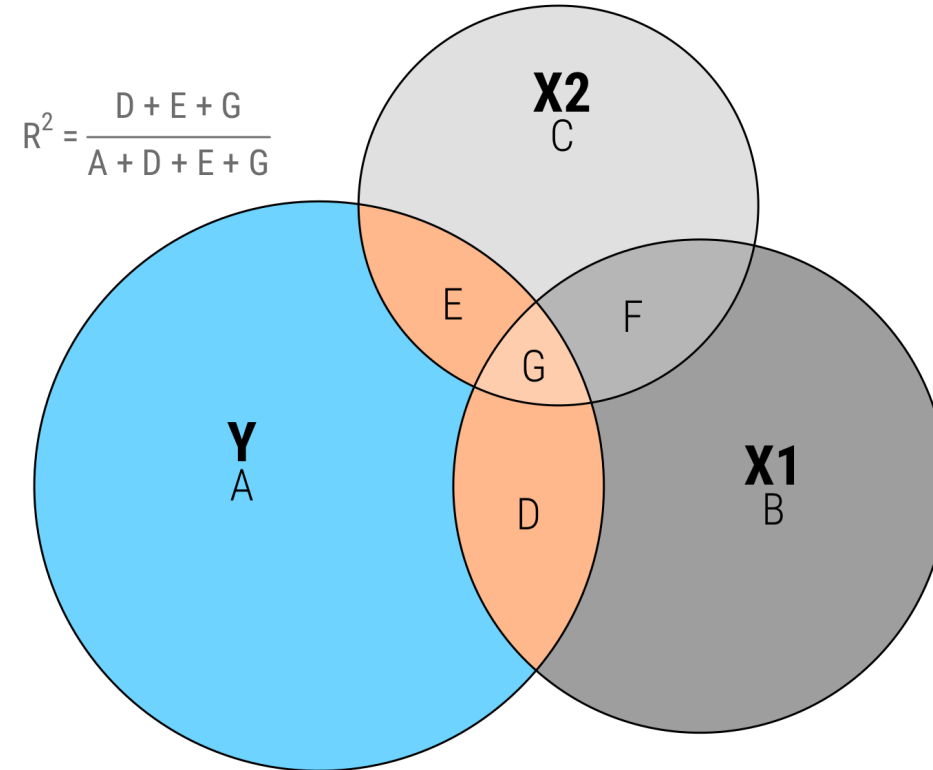
**How does significance relate to causation?**

**If we can't use statistics to assert causation  
how are we going to use this information  
in program evaluation?**

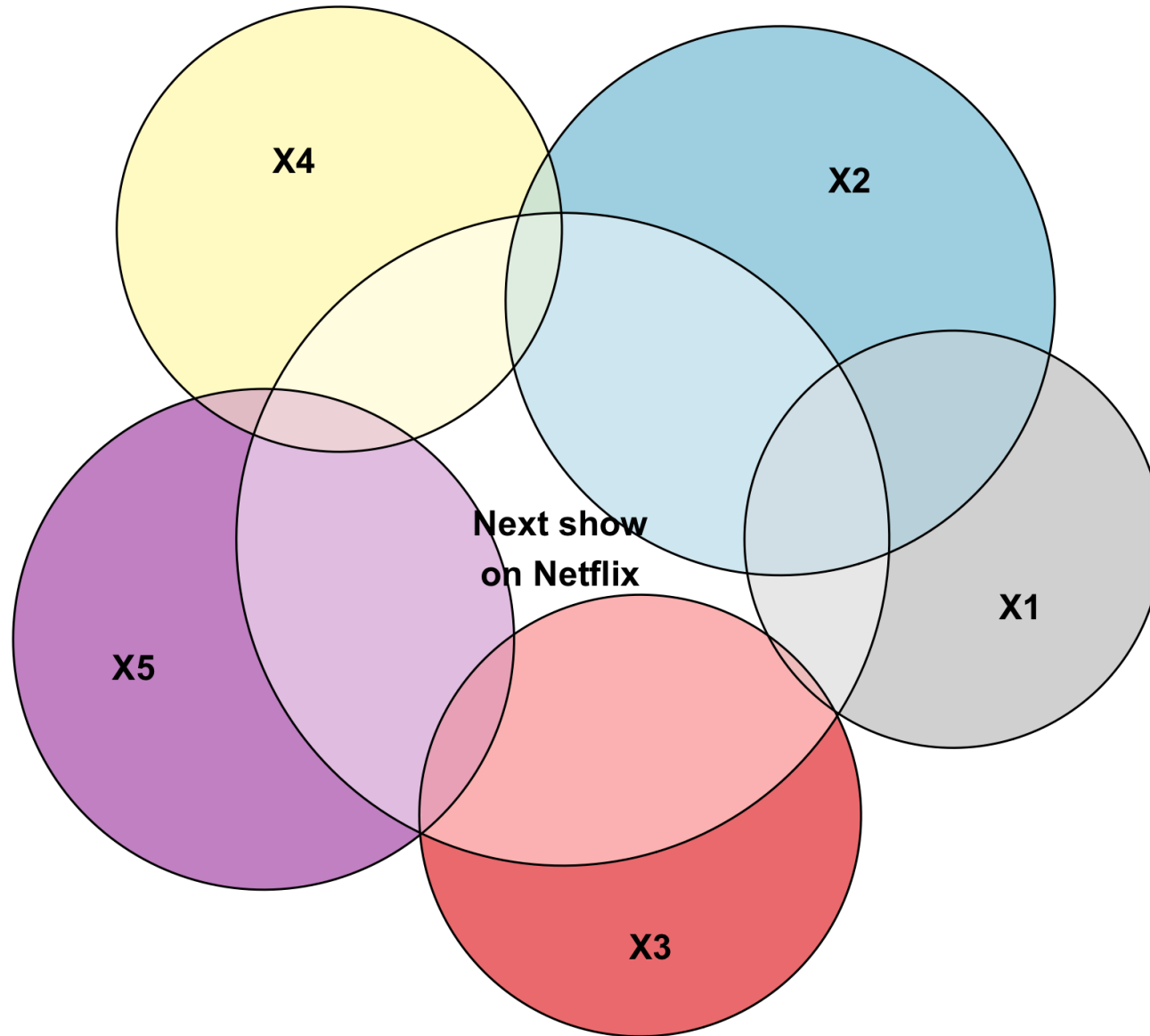
**What counts as a "good"  $R^2$ ?**

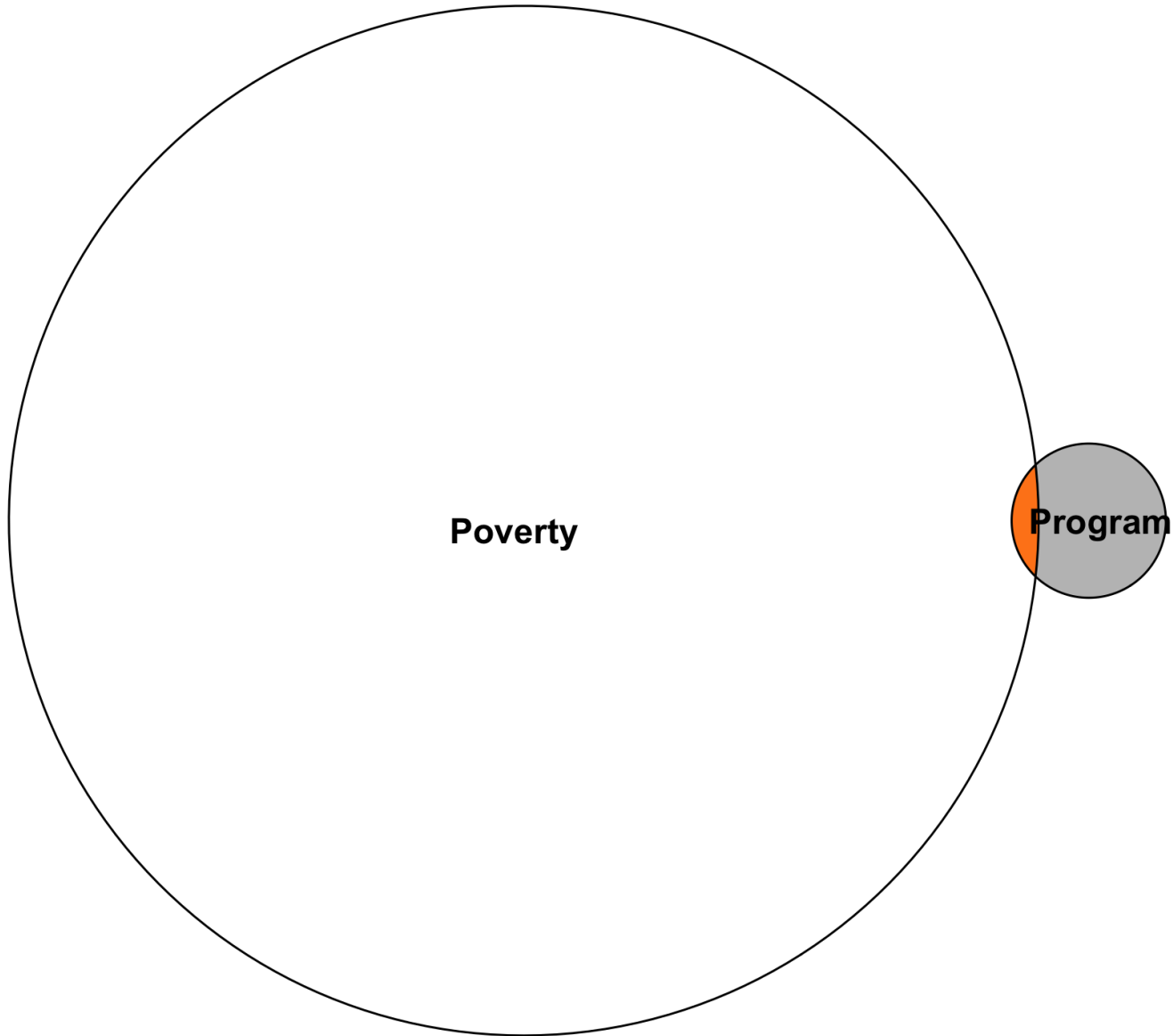
## R<sup>2</sup> represented as an Euler diagram

Orange area (D + E + G) shows the total variance in outcome Y that is jointly explained by X1 and X2



Circles sized according to each variable's sum of squares; size of overlapping areas is not 100% correct due to limitations in available geometric space

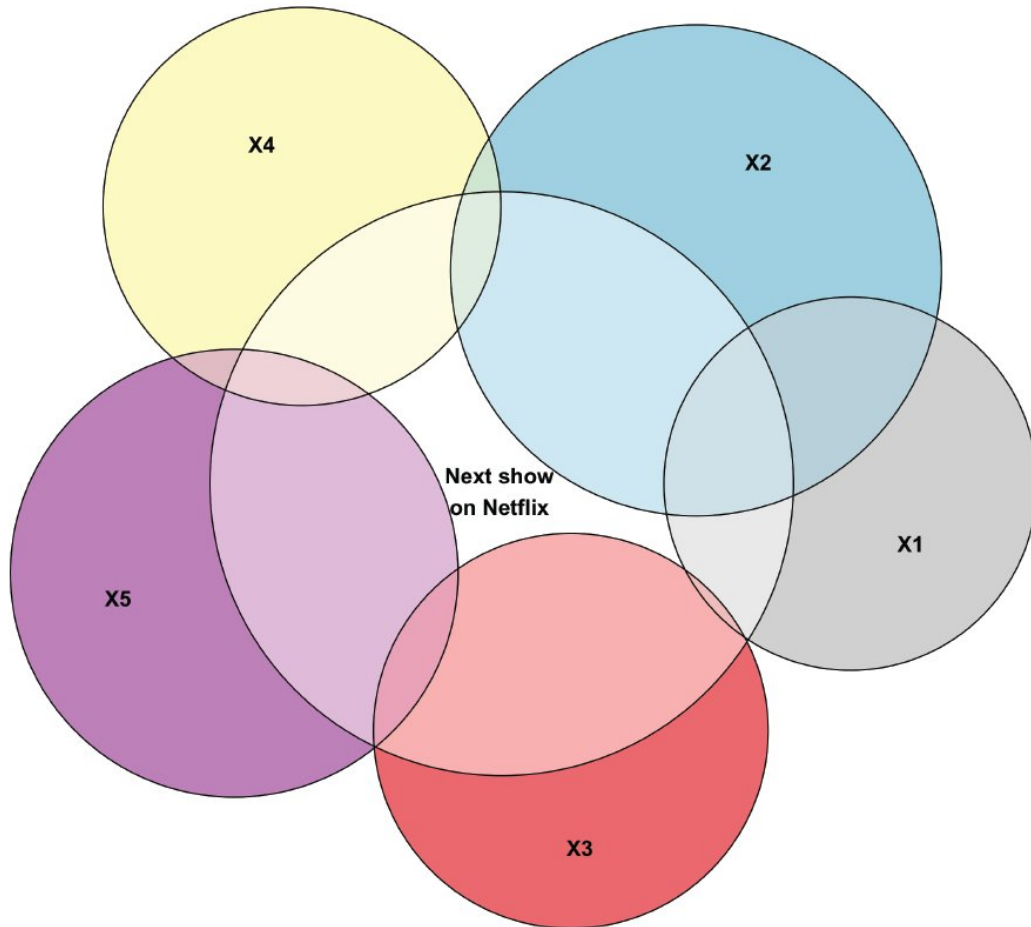






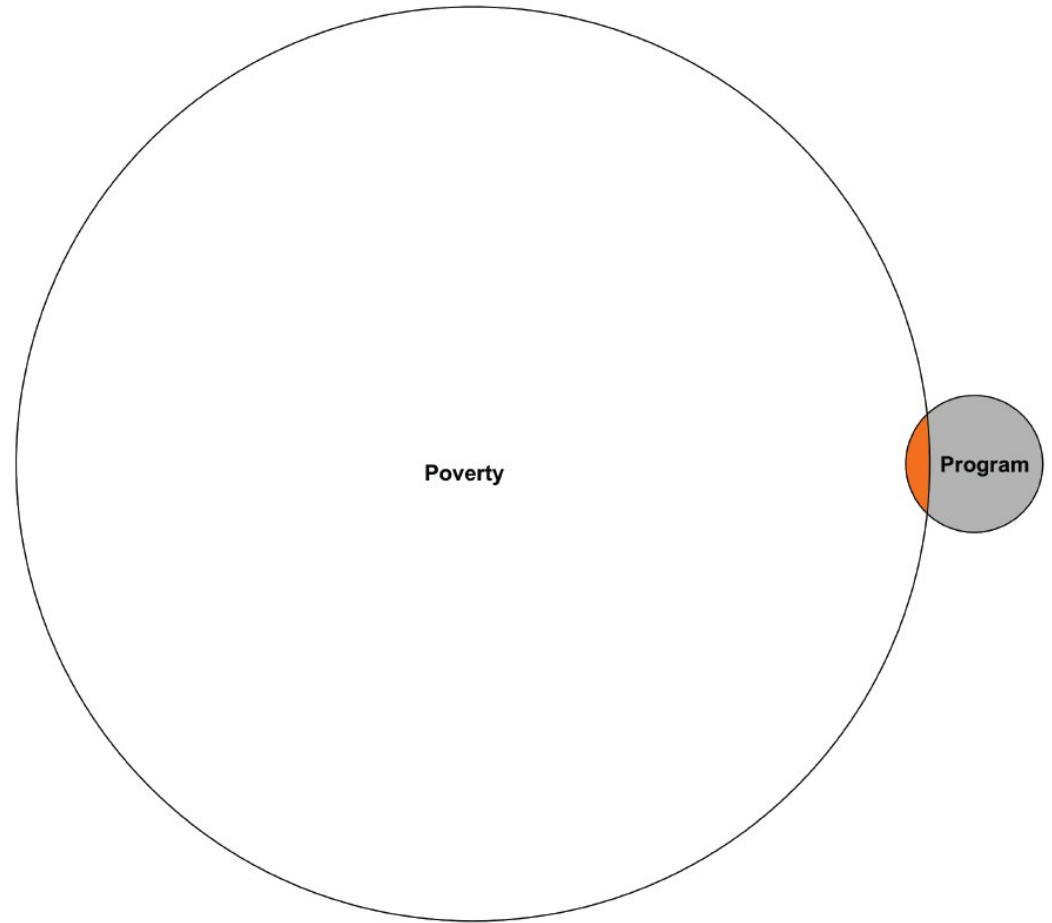
## Regression focused on prediction

Focus is on Y  
Minimize unexplained variation in the outcome



## Regression focused on estimation

Focus is on a single X  
Get that little sliver as accurate as possible



**R time!**