

SIPPS Coding Workshop

06: Introduction to linear models

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Plan for today

- ▶ what is a linear regression model? (quick review)
- ▶ prepping your data for analysis
- ▶ using the `lm()` function & interpreting the output

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- ▶ when we use R to fit this line, what we get as output of our analysis is an **intercept** and at least one **slope**
- ▶ usually, these **slope** values (also called **betas**) are what we're most interested in: if a slope associated with a given X variable is significantly different than zero, we can conclude that the value of X is meaningfully related to the value of Y

What is a linear regression model?

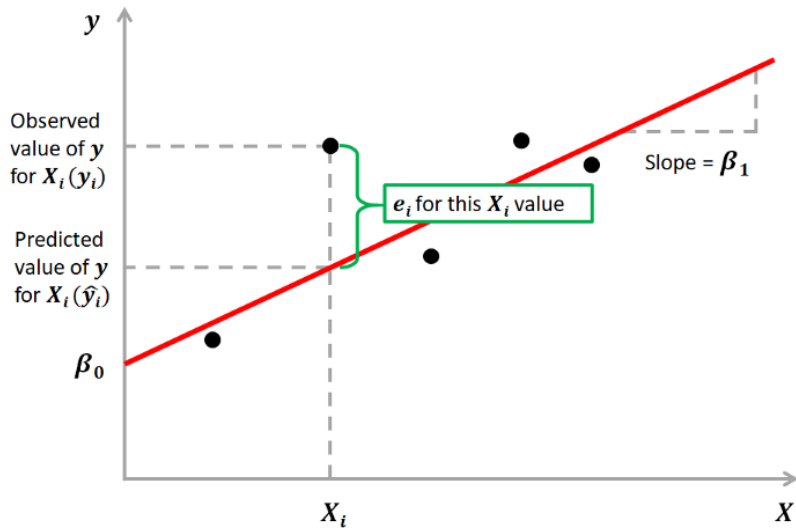


Figure 1: Illustration of linear regression

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- ▶ $\text{enjoyment} \sim (\text{yelp rating}) + (\text{type of restaurant})$
- ▶ if both slopes are significant, we can say that both the yelp rating and the type of restaurant are significantly associated with food enjoyment

Types of variables

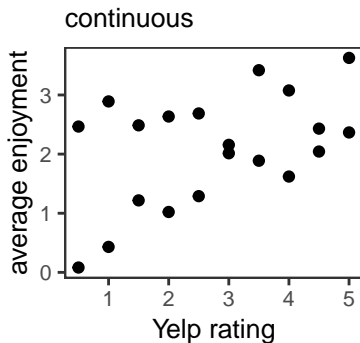
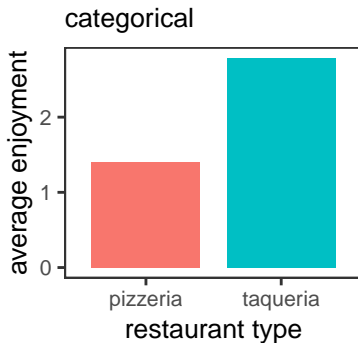
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- ▶ regression models are inherently flexible, and allow you to quantify many different kinds of variables & relationships
- ▶ in our toy model, for example, we are looking at two different types of moderators/predictors: **continuous** (the yelp rating) & **categorical** (the type of restaurant)

Types of variables

- ▶ example results:



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- ▶ equations follow the format: $Y \sim X1 [+ X2 + X3 + \dots]$
- ▶ so we might run: `lm(data = mydata, enjoyment ~ yelp_rating + restaurant_type)`

Plan for today

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