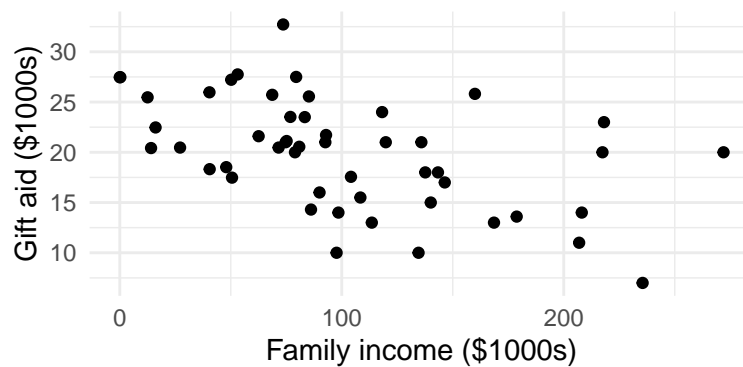


Simple Linear Regression: Interpretation

Example 1: continuous x

The `elmhurst` dataset from `openintro` provides a random sample of 50 students' gift aid for students at Elmhurst College. We will examine the relationship between the family `income` of the student and the `gift_aid` that student received (in \$1000s)



Linear regression model:

Are the first two conditions of LINE satisfied?

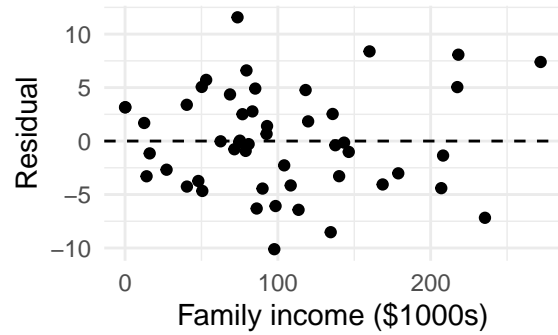
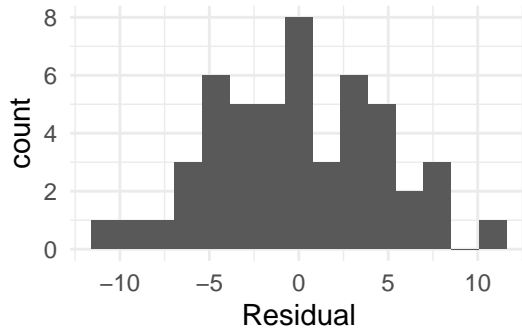
Find the coefficient estimates:

variable	mean	s
family_income	101.78	63.21
gift_aid	19.94	5.46

R
-0.499

Fitted regression model:

Check remaining conditions:



Interpret b_0 in context:

Interpret b_1 in context:

Find and interpret the coefficient of determination:

Example 2: categorical x

Running example: the `possum` data from `openintro` which has data representing possums in Australia and New Guinea

- Response variable: `tail_l` (tail length in cm)
- Explanatory variable: `pop` (either “Vic” for possums from Victoria or “other” for possums from New South Wales or Queensland)

Write out our indicator variable here:

Linear regression model:

Fitted model:

Interpret b_0 in context:

Interpret b_1 in context:

Retroactively check conditions

