

EC203 – Applied Econometrics

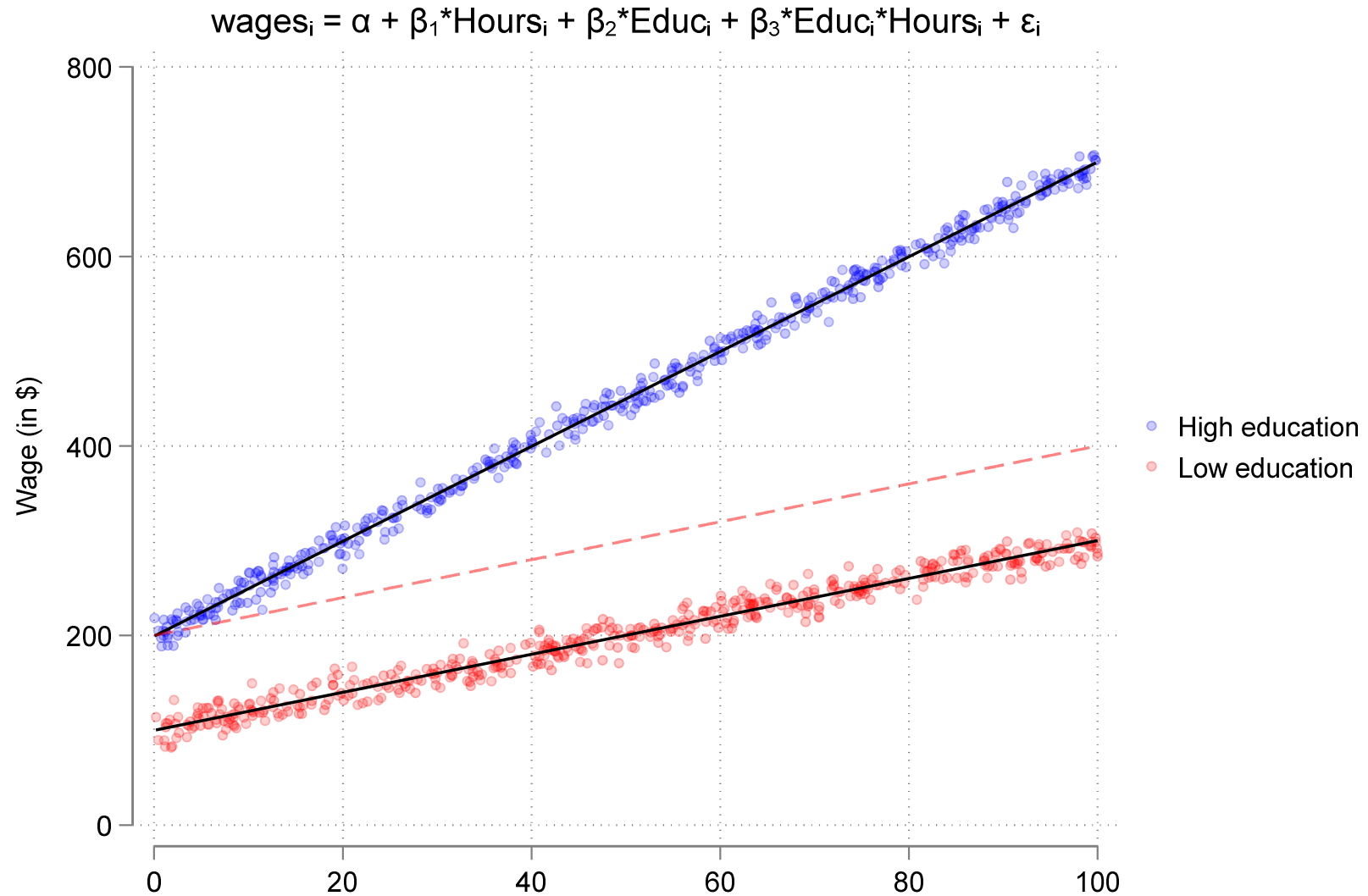
Term 2, Week 6

Sushil Mathew

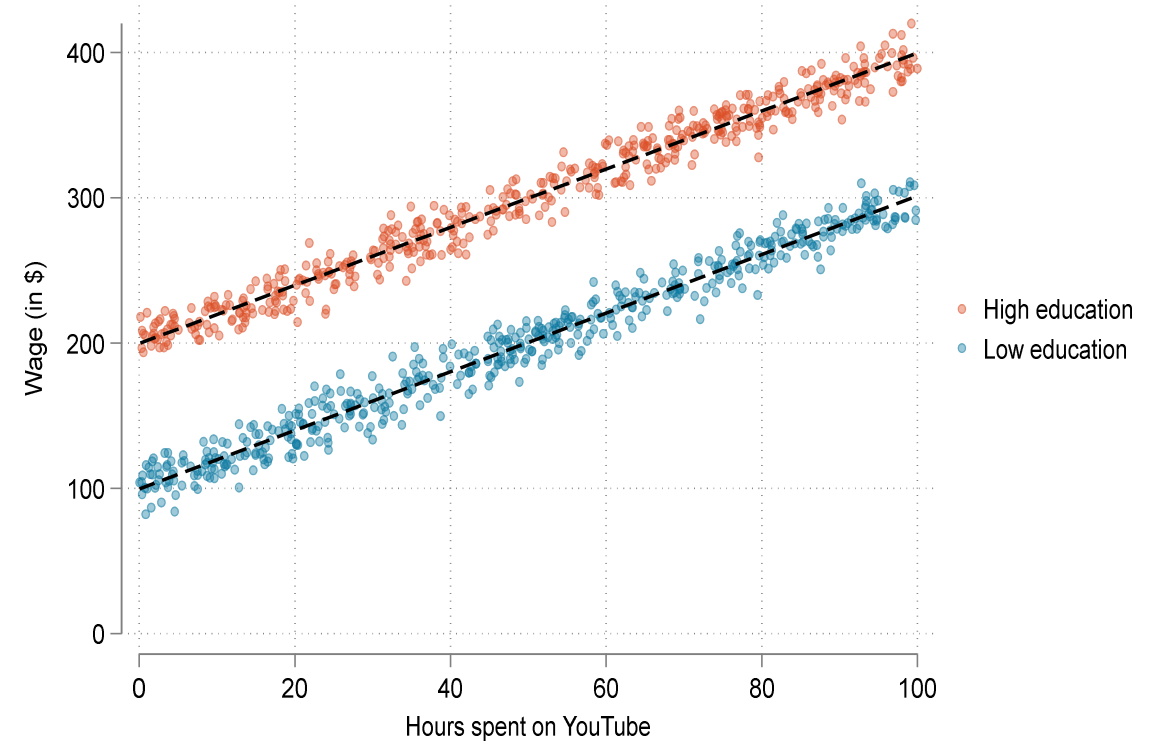
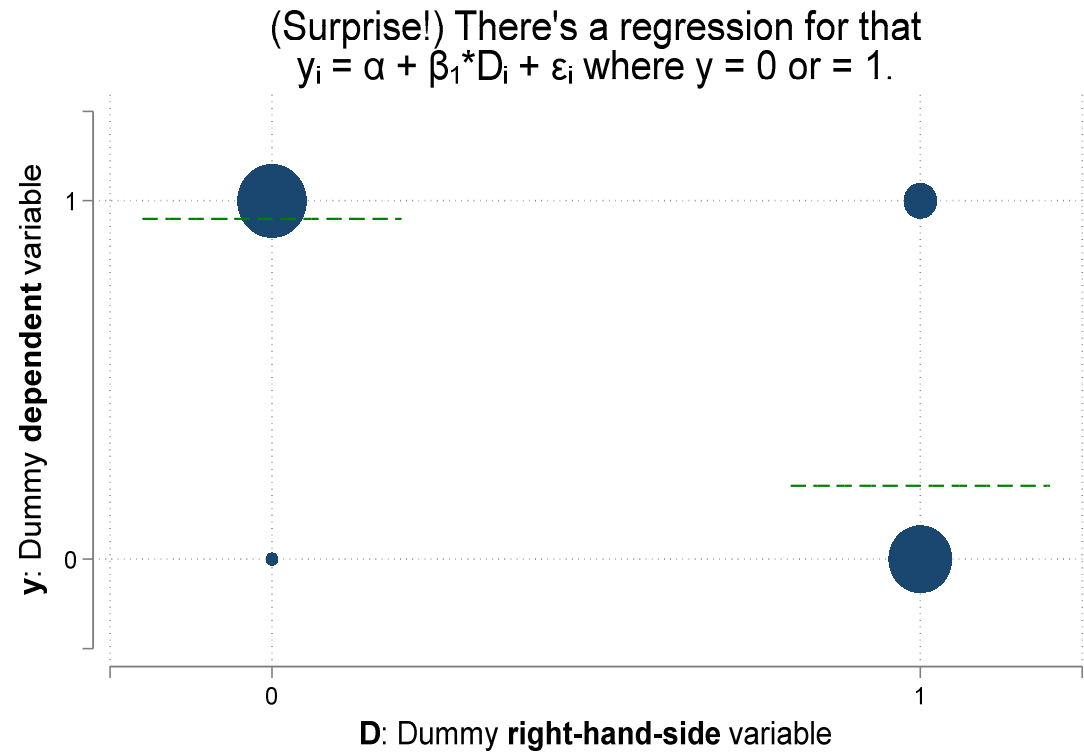


So far...

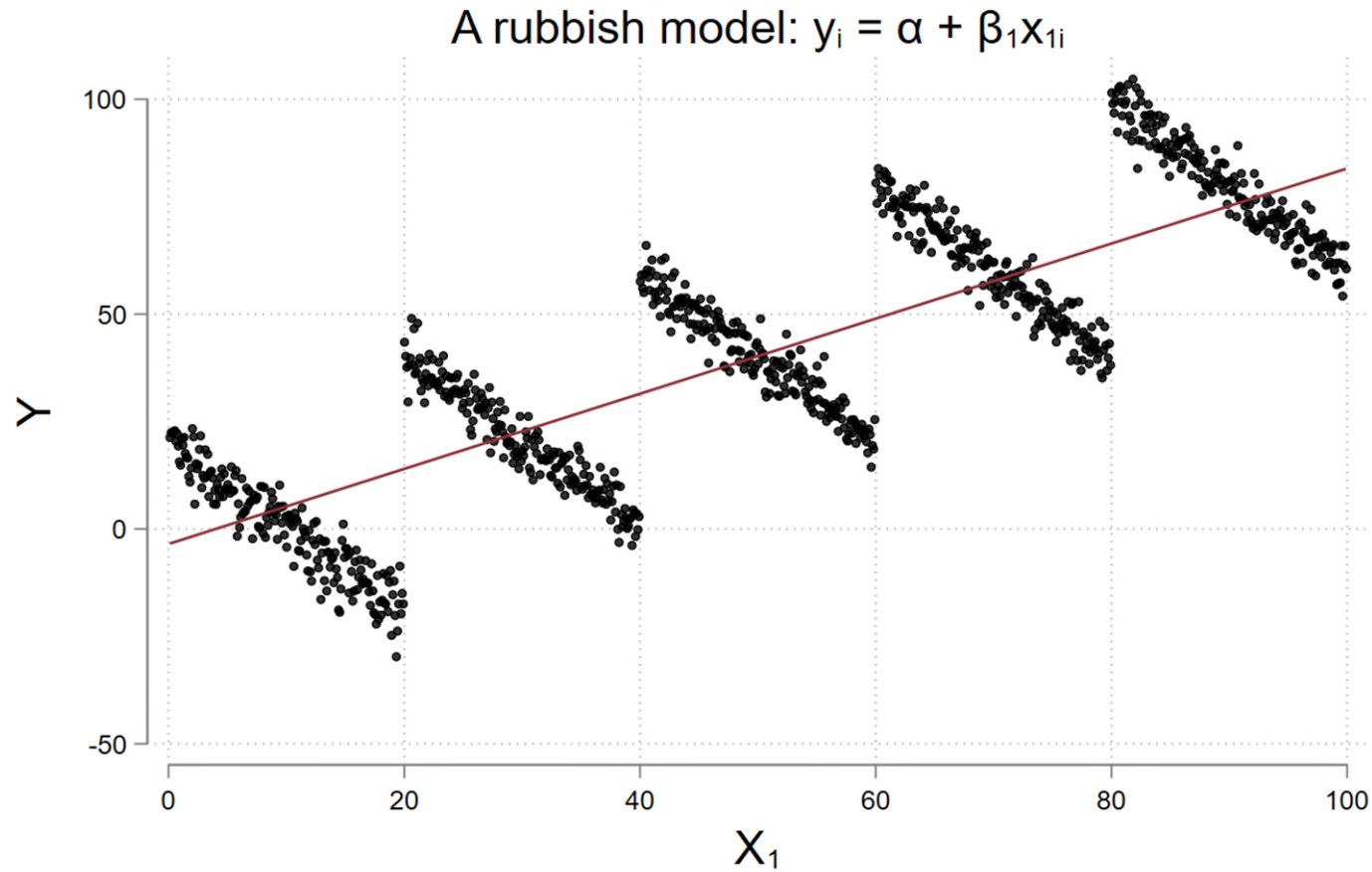
Visual interpretation of coefficients



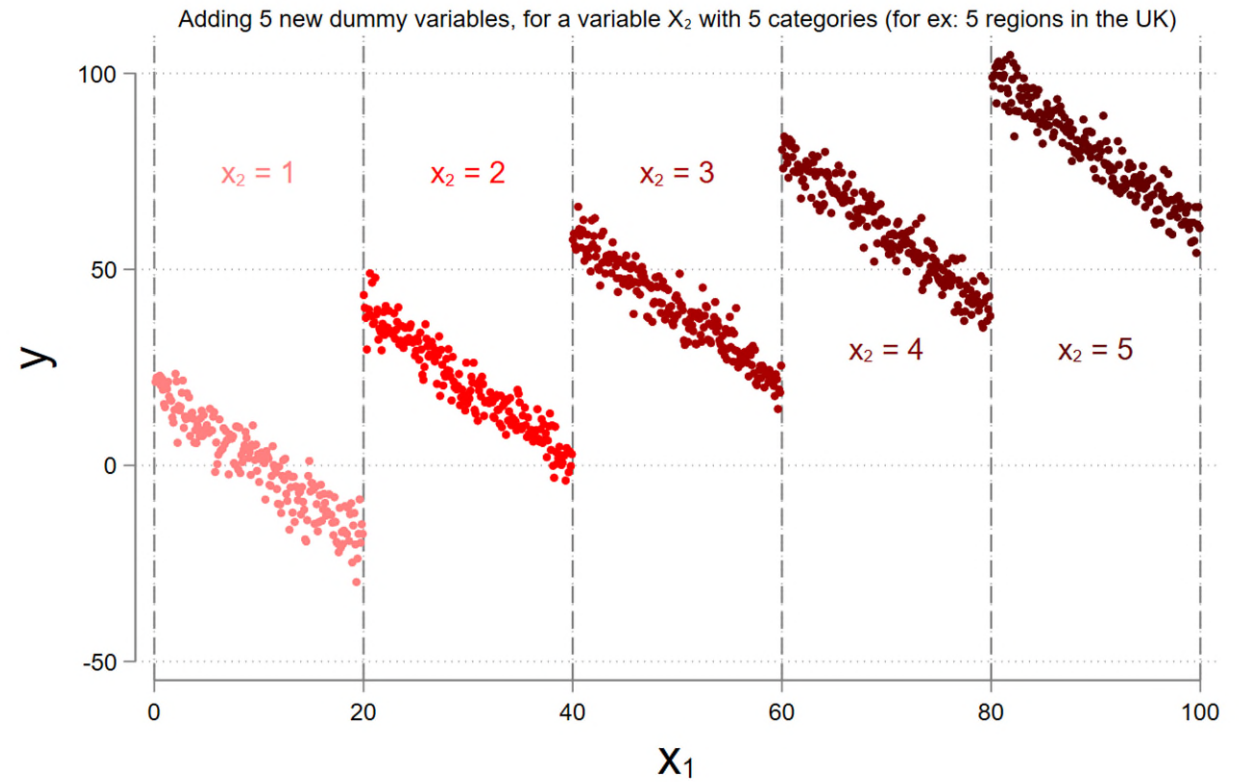
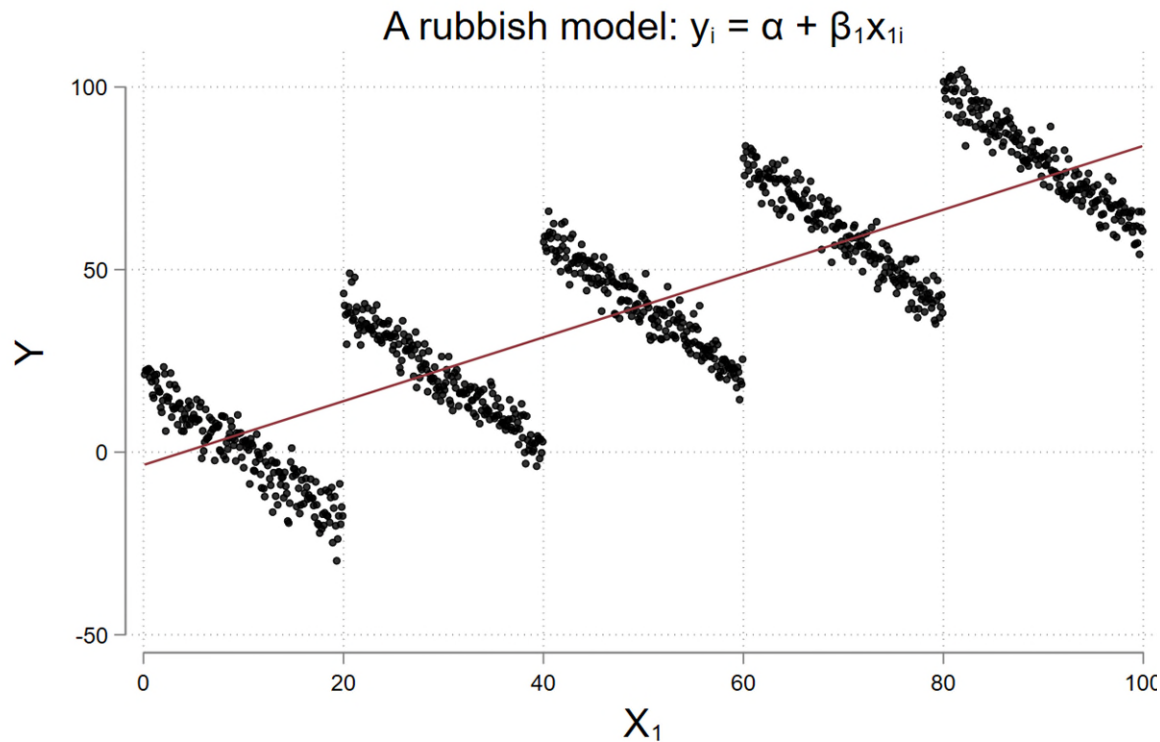
Regressions are not always a line



Adding variables to a regression is good



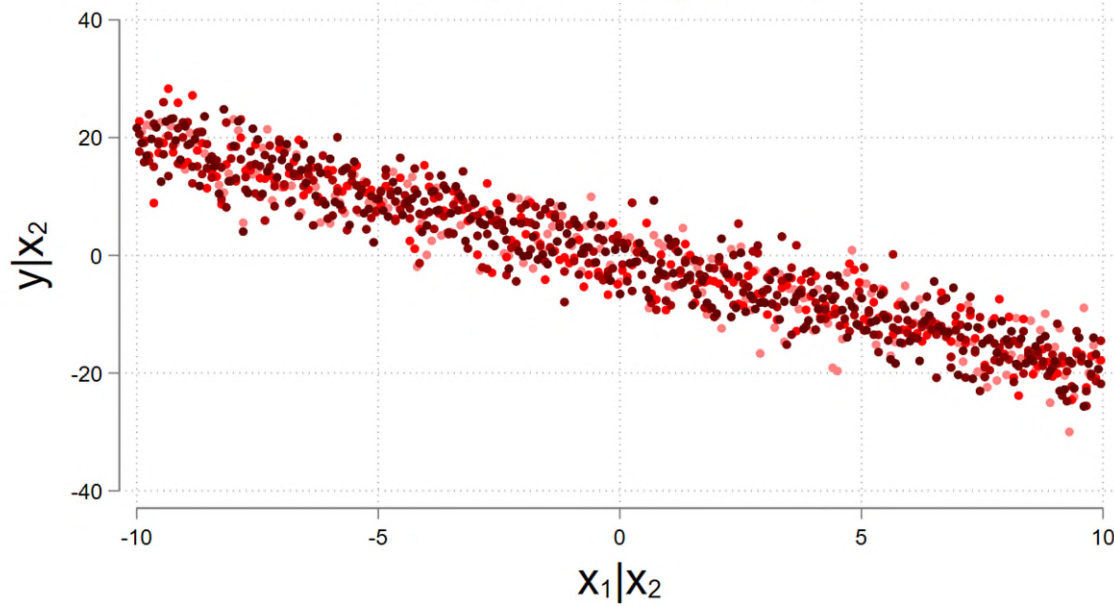
Adding variables to a regression is good



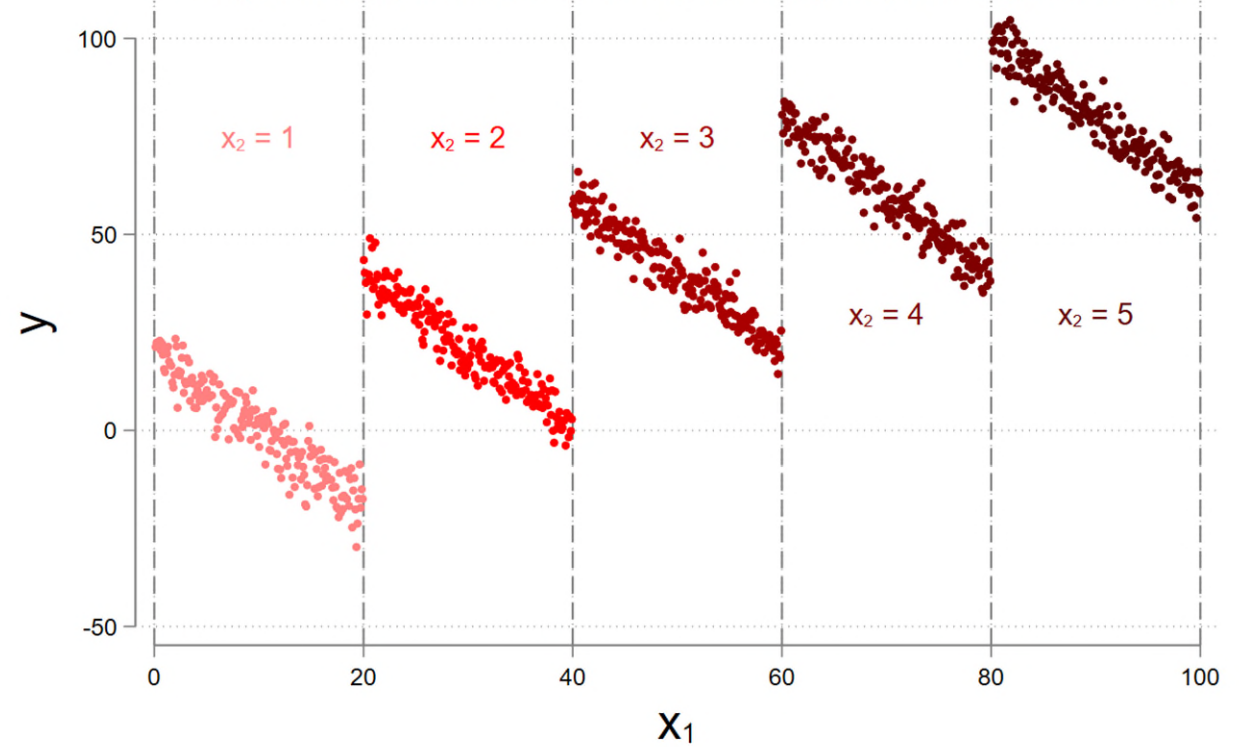
Adding variables to a regression is good

What controlling for a variable looks like visually

Notice the axes scale and colour of dots.
Compare this to Fig2 colours



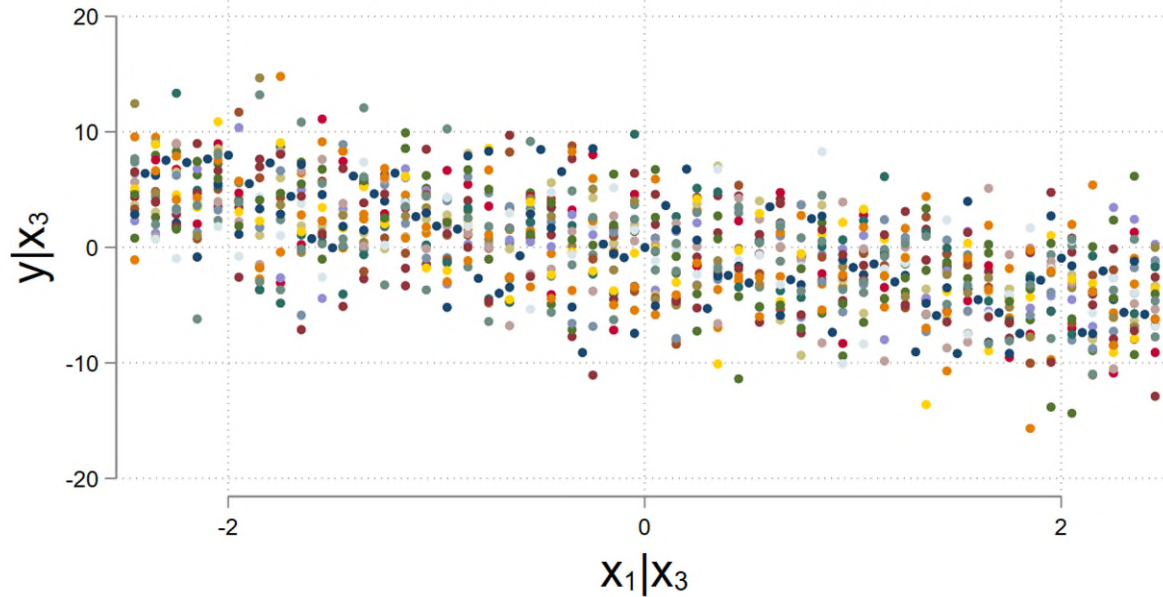
Adding 5 new dummy variables, for a variable X_2 with 5 categories (for ex: 5 regions in the UK)



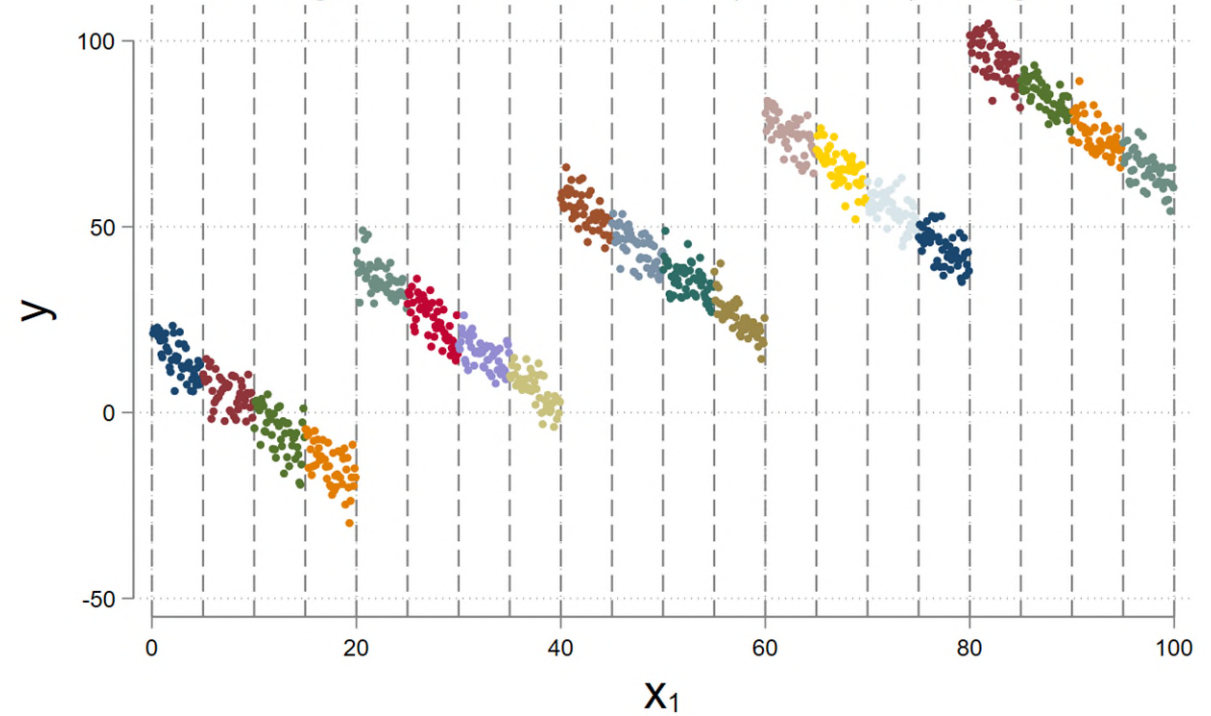
Well...not always

What controlling for an irrelevant variable looks like visually

The slope is still the same
But the uncertainty in the slope has increased
Also compare scale of y and x axis with fig3



Adding a variable X_3 with 20 (irrelevant) categories



From a causal inference perspective

- Single linear regression models are generally bad (**omitted relevant variables or omitted variable bias**)
- Multiple linear regressions are better (fixes omitted variable bias)
- Multiple linear regressions are also bad (addition of irrelevant variables)
- You can't randomize education to study the effect of education on wage.

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Fortunately, we live in a strange world