Poli 5D Social Science Data Analytics

Regression in Stata

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February 10, 2017

Contact Information

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The teaching staff is a team!

Professor Roberts	M	1600-1800 (SSB 299)
Jason Bigenho	Th	1000-1200 (Econ 116)
Shane Xuan	M	1100-1150 (SSB 332)
	Th	1200-1250 (SSB 332)

Supplemental Materials

UCLA STATA starter kit

http://www.ats.ucla.edu/stat/stata/sk/

Princeton data analysis

http://dss.princeton.edu/training/

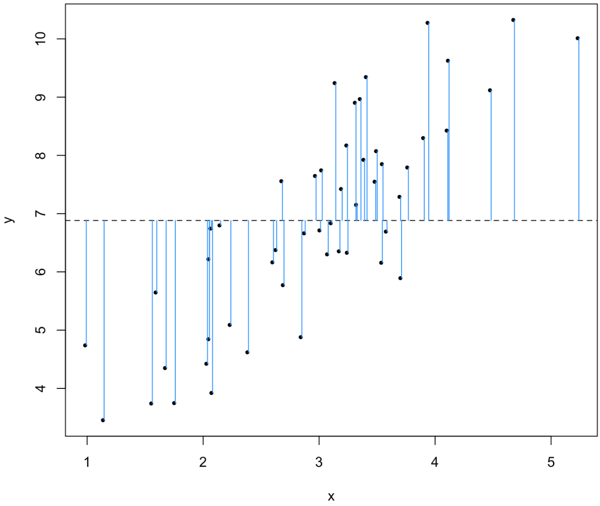
Road map

Some quick notes before we start today's section:

- Make sure that you pass around the attendance sheet
- Open a .do file
- Import your data ("h1_fams_data.xlsx")
- I will be using my slides, and you will need to type the code in your .do file

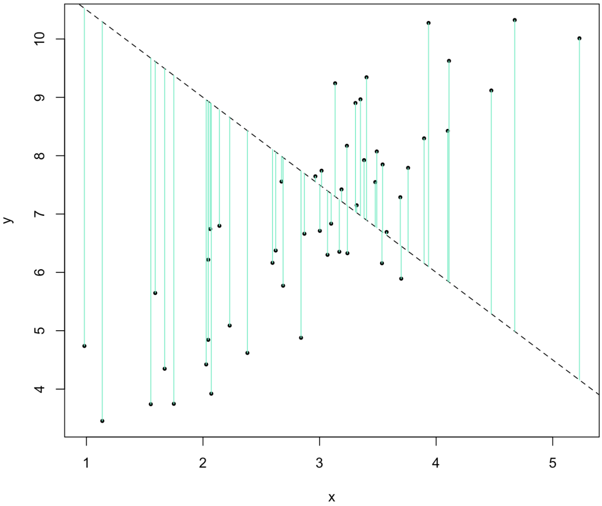
Regression: Examples!

Figure: Data points



Regression: Examples!

Figure: Bad fit



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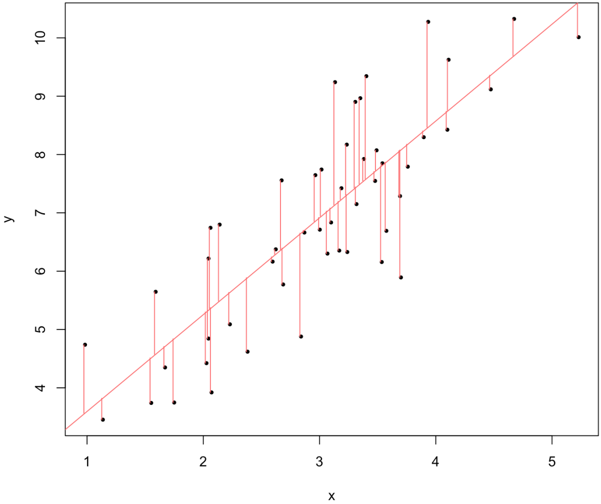

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$$y_i = \beta_0 + \beta_1 x_i$$

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- (You don't need to memorize this) Regression Coefficient is calculated by

$$\hat{\beta}_1 = \frac{\sum_i (x_i - \overline{x})(y_i - \overline{y})}{\sum_i (x_i - \overline{x})^2}$$

Interpretation of regression coefficient

Suppose we have the model

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- A 1-unit change in x_2 is associated with a β_2-unit change in y, all else equal.

Application

- Suppose consumption ($cons$) is a function of family income (inc):

$$cons = \beta_0 + \beta_1 inc + u$$

where u contains other factors affecting consumption. What change do you expect to see in $cons$ with a two-unit increase in inc?

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  Thus, we see a $2\beta_1$ increase in $cons$ with a 2-unit increase in inc!

Code

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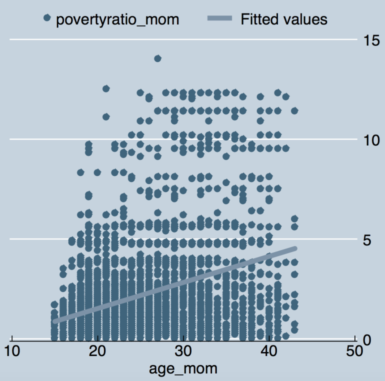

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fitted	fv	resid	e
.9974926	.9974928	-.6974928	-.6974928
1.519705	1.519705	-.4197054	-.4197053
1.258599	1.258599	.5414009	.5414008
1.911364	1.911365	-1.711365	-1.711365
2.955789	2.95579	-2.75579	-2.75579

Figure: Similar results for fitted values, and residuals

What else can you do using regressions?

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  - regress y_1 x_1 x_2 ...