

EC3090 – Econometrics -

Lab session 2

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Data file: MEAP93

Question C3.7 (Wooldridge, 2008)

1. Estimate the model

$$\text{math10} = \beta_0 + \beta_1 \log(\text{expend}) + \beta_2 \ln \text{chprg} + u$$

and report the equation in the usual form, including the sample size and R-squared. Are the signs of the slope coefficients what you expected? Explain.

2. What do you make of the intercept you estimated in part 1)? In particular, does it make sense to set the two explanatory variables to zero?
3. Now run the simple regression of *math10* and $\log(\text{expend})$ and compare the slope coefficient with the estimate obtained in part 1). Is the estimated spending effect now larger or smaller than in part 1)?
4. Find the correlation between $\ln \text{expend} = \log(\text{expend})$ and $\ln \text{chrg}$. Does its sign make sense to you?
5. Use part 4) to explain your findings in part 3).

Variables:

1. lnchprg	perc. of studs. in sch. lunch prog.
2. enroll	school enrollment
3. staff	staff per 1000 students
4. expend	expend. per stud., \$
5. salary	avg. teacher salary, \$
6. benefits	avg. teacher benefits, \$
7. droprate	school dropout rate, perc
8. gradrate	school graduation rate, perc
9. math10	perc studs passing MEAP math
10. sci11	perc studs passing MEAP science
11. totcomp	salary + benefits
12. ltotcomp	$\log(\text{totcomp})$
13. lexpend	$\log$ of expend
14. lenroll	$\log(\text{enroll})$
15. lstaff	$\log(\text{staff})$
16. bensal	benefits/salary
17. lsalary	$\log(\text{salary})$