Example for knitting pdf with models

Introduction

This is a causal analysis on fourth graders in Massachusetts public schools in the spring of 1998. We investigating the effect of student per teacher ratio on the test results of the fourth graders. ECT.

HERE COMES THE MOTIVATION WHY THIS IS A MEANINGFUL PROJECT AND WHAT IS THE MAIN GOAL!

Data

The Massachusetts data are ... Further information is available (here)[https://www.rdocumentation.org/packages/AER/versions/1.2-9/topics/MASchools].

ECT.

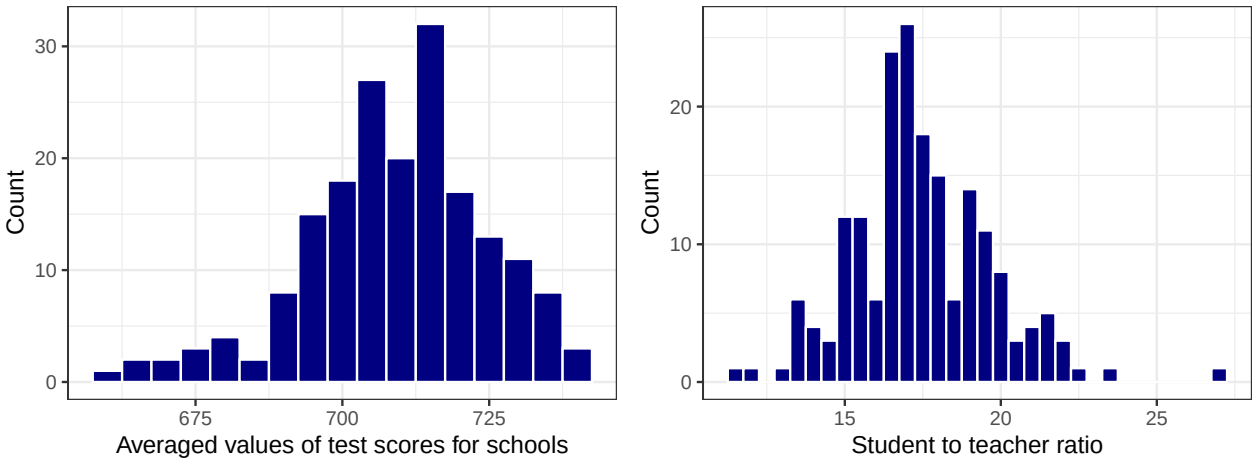
Table 1: Descriptive statistics

	Mean	Median	SD	Min	Max	P05	P95
Overall Grade	709.04	709.50	15.44	658.00	740.00	680.00	733.75
Student to teacher ratio	17.44	17.10	2.23	11.40	27.00	13.92	21.37
Percent of english learner	1.20	0.00	3.10	0.00	24.49	0.00	6.73
Income per capita	18.35	16.94	5.62	9.69	46.85	12.36	29.37
Student to computer ratio	8.14	7.80	2.76	2.60	18.40	4.30	13.55
Total Expenditure ($)	5301.32	5147.50	865.95	3465	8623	4226.75	7077.25
Special education students (%)	16.01	15.50	3.55	8.10	34.30	11.33	22.18
Percent qualifying for reduced-price lunch	16.01	10.95	15.71	0.50	76.20	2.90	51.08
Average teacher hourly wage ($)	35.97	35.88	3.18	24.97	44.49	31.56	41.61

The number of observations is 186 for all of our key variables.

DESCRIPTION OF THE SUMMARY STATS: WHAT CAN WE LEARN FROM THEM?

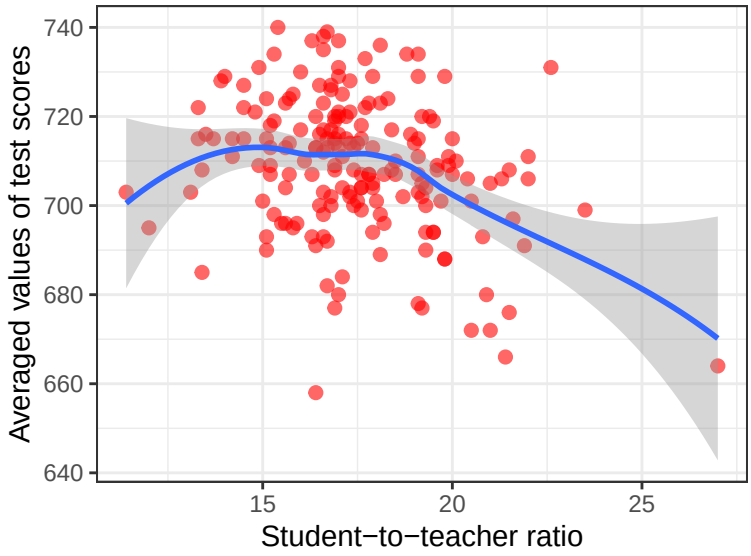
As the focus is the price difference, the next Figure shows the histogram for this variable.



DESCRIPTION OF THE FIGURE. WHAT DOES IT TELS US?

(May change the order of descriptive stats and graph.)

The key pattern of association is:



How will you include this in your model?

Short description on the other variables: 2-10 sentence depends on the amount of variables you have. You should reference your decisions on the graphs/analysis which are located in the appendix.

Model

My preferred model is:

score $= 738.1 - 0.28\ (student/teacher < 18) - 1.33\ (student/teacher \geq 18) + \delta Z$

where Z are standing for the controls, which includes controlling for english language, lunch, other special characteristics and wealth measures. From this model we can infer:

- when every covariates are zero, students expected to have grade score of 738.1

- when the student to teacher is one unit larger, but below the value of 18, we see students to have on average 0.28 smaller grades.
- when the student to teacher is one unit larger, with the value above or equal to 18, we see students to have on average 1.33 smaller grades.

However, based on the heteroskedastic robust standard errors, these results are statistically non different from zero. To show that, I have run a two-sided hypothesis test:

$$H_0 := \beta_1 = 0$$

$$H_A := \beta_1 \neq 0$$

I have the t-statistic as -0.47 and the p-value as 0.64, which confirms my conclusion.

We compare multiple models to learn about the stability of the parameters. Bla-bla:

[H]

Table 2: Models to uncover relation between test score and student to teacher ratio

	(1)	(2)	(3)	(4)	(5)
Intercept	743.9***	712.1***	719.6***	739.0***	738.1***
	(9.798)	(12.39)	(11.70)	(10.39)	(26.35)
student/teacher	-1.998***				
	(0.5637)				
student/teacher (<18)		-0.0220	-0.3026	-0.5095	-0.2812
		(0.7485)	(0.7054)	(0.5678)	(0.5990)
student/teacher (>=18)		-4.272***	-3.238***	-1.251*	-1.328*
		(1.020)	(0.9562)	(0.5600)	(0.5260)
English	No	No	Yes	Yes	Yes
Lunch	No	No	No	Yes	Yes
Other Special	No	No	No	Yes	Yes
Wealth Measures	No	No	No	No	Yes
Observations	186	186	186	186	186
R2	0.08344	0.12017	0.25981	0.70002	0.73465

Robustness check / 'Heterogeneity analysis'

Task: calculate and report t-tests for each countries.

Conclusion

HERE COMES WHAT WE HAVE LEARNED AND WHAT WOULD STRENGHTEN AND WEAKEN OUR ANALYSIS.

Appendix

Here comes all the results which are referenced and not essential for understanding the MAIN results.