Example of R Markdown for PDF output

Your Name

2024-08-13

Problem 1

$$
\begin{aligned}
\hat{\beta} &= (\mathbf{X}'\mathbf{X})^{-1}(\mathbf{X}'\mathbf{Y}) \\
&= (\mathbf{X}'\mathbf{X})^{-1}(\mathbf{X}'(\mathbf{X}\beta + \mathbf{e})) \\
&= (\mathbf{X}'\mathbf{X})^{-1}\mathbf{X}'\mathbf{X}\beta + (\mathbf{X}'\mathbf{X})^{-1}\mathbf{X}'\mathbf{e} \\
&= \beta + (\mathbf{X}'\mathbf{X})^{-1}\mathbf{X}'\mathbf{e}
\end{aligned}
$$

Problem 2

```
# === Load packages === #
library(modelsummary)

# === Load Data === #
data(hprice2, package = "wooldridge")

# === Estimate three models === #
reg1 <- lm(log(price) ~ log(nox), data = hprice2)
reg2 <- lm(log(price) ~ log(nox) + rooms, data = hprice2)
reg3 <- lm(log(price) ~ log(nox) + rooms + I(rooms^2), data = hprice2)

# === Show the Results === #
ls_models <-
  list(
    "OLS 1" = reg1,
    "OLS 2" = reg2,
    "OLS 3" = reg3
  )

modelsummary(
  models = ls_models,
  output = "flextable",
  fmt = "%.2f",
  coef_map = c(
    "log(nox)" = "log(Nox)",
    "rooms" = "Rooms",
    "I(rooms^2)" = "Rooms sq"
    ),
  stars  =  c("*" = .05, "**" = .01, "***" = .001),
  gof_map = c("nobs", "r.squared"),
```

```
  title = "Example Regression Results",
  notes = list("Note: Std. Errors in parentheses")
  )
```

Table 1: Example Regression Results

	OLS 1	OLS 2	OLS 3
log(Nox)	-1.04***	-0.72***	-0.79***
	(0.08)	(0.07)	(0.06)
Rooms		0.31***	-0.76***
		(0.02)	(0.17)
Rooms sq			0.08***
			(0.01)
Num.Obs.	506	506	506
R2	0.264	0.514	0.549

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Note: Std. Errors in parentheses