

Problem Set #6 Answer Key

Economics 435: Quantitative Methods

Fall 2011

1 Public sector unionization and size of government: Part III

Please see the file <http://www.sfu.ca/~bkrauth/econ435/restricted/psu3.pdf>. The R code used to generate these results is available at <http://www.sfu.ca/~bkrauth/econ435/restricted/qunionization3.R>

2 Question 17.2 from the textbook

The difference is

$$\begin{aligned} D &= \hat{P}(\text{grad} = 1 | \text{hsGPA} = 3, \text{SAT} = 1200, \text{study} = 10) - \hat{P}(\text{grad} = 1 | \text{hsGPA} = 3, \text{SAT} = 1200, \text{study} = 5) \\ &= \Lambda(-1.17 + 0.24 \times 3 + 0.00058 \times 1200 + 0.73 \times 10) - \Lambda(-1.17 + 0.24 \times 3 + 0.00058 \times 1200 + 0.73 \times 5) \\ &= 0.01939030 \end{aligned}$$

or about two percentage points.

In order to calculate the final number, you could execute these two lines of code in R:

```
Lambda <- function(z) exp(z)/(1+exp(z))
Lambda(-1.17+0.24*3+0.00058*1200+0.73*10)-Lambda(-1.17+0.24*3+0.00058*1200+0.73*5)
```