

# ECON 2123 Introduction of Econometrics

## HW1 Answer Key

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Topics: Reading and Interpret Stata Output

### Question 1

$$\begin{aligned} t &= \frac{\bar{Y}_s - \bar{Y}_l}{\sqrt{\frac{s_s^2}{n_s} + \frac{s_l^2}{n_l}}} = \frac{\bar{Y}_s - \bar{Y}_l}{SE(\bar{Y}_s - \bar{Y}_l)} \\ &= \frac{-1.676848}{0.0335309} = -50.009 \end{aligned}$$

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### Question 2

$$(\bar{Y}_s - \bar{Y}_l) \pm 1.96 \times SE(\bar{Y}_s - \bar{Y}_l) = (-1.742569, -1.61113)$$

$$-1.676848 + 0.065721 = -1.61113$$

(-1.611049 from table a slight difference by stata and excel)

$$-1.676848 - 0.065721 = -1.742569$$

(-1.742647 from table a slight difference by stata and excel)

The 95% confidence interval for  $\Delta$  doesn't include 0

The hypothesis that  $\Delta = 0$  is rejected at the 5% level.

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### Question 3

Standard error =  $\frac{\text{standard deviation}}{\text{square root of } n}$

$$= \frac{1.059278}{\sqrt{998}} = 1.059278/31.57530681 = 0.033530859$$

(very close to the stata output)