Hoja de Ejercicios 9
Contrastes de una sólo restricción lineal

Estadística-II. INTRODUCCIÓN a la ECONOMETRÍA. UC3M

1. (Ejercicio 4.11, Wooldridge 2003) The following table was created using the data in CEOSAL2.RAW:

Dependent Variable: log(salary)			
Independent Variables	(1)	(2)	(3)
log($sales$)	0.224	0.112	0.188
	(0.027)	(0.040)	(0.040)
log($mktval$)	-	0.112	0.100
		(0.050)	(0.049)
$profmarg$	-	-0.0023	-0.0022
		(0.0022)	(0.0021)
$ceoten$	-	-	0.0171
			(0.0055)
$comten$			-0.0092
			(0.0033)
$Intercept$	4.94	4.62	4.57
	(0.20)	(0.25)	(0.25)
Observations	177	177	177
R-Squared	0.281	0.304	0.353

The variable $mktval$ is market value of the firm, $profmarg$ is profit as a percentage of sales, $ceoten$ is years as CEO with the current company, and $comten$ is total years with the company.

(i) Comment on the effect of $profmarg$ on CEO salary.

(ii) Does market value have a significant effect? Explain.

(iii) Interpret the coefficients on $ceoten$ and $comten$. Are the variables statistically significant?

(iv) What do you make of the fact that longer tenure with the company, holding the other factors fixed, is associated with a lower salary?

2. (Ejercicio 4.14, Wooldridge (2003)) Refer to Problem 3.14. Now, use the log of the housing price as the dependent variable:

$$\log(price) = \beta_0 + \beta_1 sqrft + \beta_2 bdrms + u.$$

(i) You are interested in estimating and obtaining a confidence interval for the percentage change in price when a 150-square-foot bedroom is added to a house. In decimal form, this is $\theta_1 = 150\beta_1 + \beta_2$. Use the data in HPRICE1.RAW to estimate θ_1.

(ii) Write β_2 in terms of θ_1 and β_1 and plug this into the log($price$).

(iii) Use part (ii) to obtain a standard error for $\hat{\theta}_1$ and use this standard error to construct a 95 % confidence interval.

3. (Ejercicio 4.17, Wooldridge (2003)) Use the data in WAGE2.RAW for this exercise.

(i) Consider the standard wage equation

$$\log(wage) = \beta_0 + \beta_1 educ + \beta_2 \exp er + \beta_3 tenure + u$$

State the null hypothesis that another year of general workforce experience has the same effect on $\log(wage)$ as another year of tenure with the current employer.

(ii) Test the null hypothesis in part (i) against a two-sided alternative, at the 5 % significance level, by constructing a 95 % confidence interval. What do you conclude?