
```
name: <unnamed>
log: /Users/julietafigliolia/Downloads/MEAN/TP1/TP1.log
log type: text
opened on: 5 Sep 2017, 20:26:18
```

```
. use BWGHT.dta
```

```
. describe
```

```
Contains data from BWGHT.dta
```

```
obs:      1,388
vars:      14                      3 Jun 1997 13:47
size:     49,968
```

variable name	storage type	display format	value label	variable label
faminc	float	%9.0g		1988 family income,
\$1000s				
cigtax	float	%9.0g		cig. tax in home state,
1988				
cigprice	float	%9.0g		cig. price in home
state, 1988				
bwght	int	%8.0g		birth weight, ounces
fatheduc	byte	%8.0g		father's yrs of educ
motheduc	byte	%8.0g		mother's yrs of educ
parity	byte	%8.0g		birth order of child
male	byte	%8.0g		=1 if male child
white	byte	%8.0g		=1 if white
cigs	byte	%8.0g		cigs smked per day while
preg				
lbwght	float	%9.0g		log of bwght
bwghtlbs	float	%9.0g		birth weight, pounds
packs	float	%9.0g		packs smked per day
while preg				
lfaminc	float	%9.0g		log(faminc)

```
Sorted by:
```

```
. browse
```

```
. sum
```

Variable	Obs	Mean	Std. Dev.	Min	Max
faminc	1,388	29.02666	18.73928	.5	65
cigtax	1,388	19.55295	7.795598	2	38
cigprice	1,388	130.559	10.24448	103.8	152.5
bwght	1,388	118.6996	20.35396	23	271
fatheduc	1,192	13.18624	2.745985	1	18
motheduc	1,387	12.93583	2.376728	2	18
parity	1,388	1.632565	.8940273	1	6
male	1,388	.5208934	.4997433	0	1
white	1,388	.7845821	.4112601	0	1
cigs	1,388	2.087176	5.972688	0	50
lbwght	1,388	4.760031	.1906622	3.135494	5.602119
bwghtlbs	1,388	7.418723	1.272123	1.4375	16.9375
packs	1,388	.1043588	.2986344	0	2.5
lfaminc	1,388	3.071271	.9180645	-.6931472	4.174387

```

. corr faminc cigs /*Ejercicio1b: correlacion entre el ingreso
familiar y consumo de cigar
> rillos*/
(obs=1,388)

```

	faminc	cigs
faminc	1.0000	
cigs	-0.1730	1.0000

```

. #delimit ;

```



```

22.11
0.0000
0.0298
20.063

```

Prob > F =
 R-squared =
 Root MSE =

```

-----

```

	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]
cigs	-.4634075	.0887594	-5.22	0.000	[-.637525, -.2892901]
faminc	.0927647	.0285864	3.25	0.001	[.0366875, .148842]
_cons	116.9741	1.037207	112.78	0.000	[114.9395, 119.0088]

```

. display _result(8) /*mostrar el R2 ajustado*/
.02840383

```

```

. test cigs faminc /*Ejercicio 1d: TestF para valuar significativad
conjunta del modelo qu
> e incluye la variable faminc*/

```

```

( 1) cigs = 0
( 2) faminc = 0

F( 2, 1385) = 22.11
Prob > F = 0.0000

```

```

. reg cigs faminc /*Ejercicio 1e: teorema FrischWaugh Etapa1*/

```

Source	SS	df	MS	Number of obs	=
Model	1481.60979	1	1481.60979	F(1, 1386)	=
Residual	47996.8419	1,386	34.6297561	Prob > F	=
				R-squared	=
				Adj R-squared	=

1,388
 42.78
 0.0000
 0.0299
 0.0292

```

Total | 49478.4517    1,387    35.6730005    Root MSE    =
5.8847

```

```

-----
-----
      cigs |      Coef.   Std. Err.      t    P>|t|     [95% Conf.
Interval]
-----+-----
      faminc |   -.0551538   .0084321    -6.54   0.000   -.0716948
-.0386129
      _cons |    3.688107   .2912973    12.66   0.000    3.116676
4.259538
-----
-----

```

```

. predict residU1, residual /*Guardo los residuos U1 de la variable
cigs*/

. label variable residU1 "Residuos de la variable cigs"

. sum residU1, detail

```

Residuos de la variable cigs

```

-----
      Percentiles      Smallest
1%      -3.66053      -3.66053
5%      -3.439915     -3.66053
10%     -3.2193        -3.66053      Obs          1,388
25%     -2.667761     -3.66053      Sum of Wgt.   1,388

50%     -1.895608
                          Largest      Mean          -4.71e-11
75%     -.1031081     37.55285      Std. Dev.     5.882583
90%     6.946162      37.82862      Variance      34.60479
95%     16.56009      42.33947      Skewness      3.452781
99%     19.89689      47.82862      Kurtosis      17.59686

```

```

. histogram residU1
(bin=31, start=-3.6605301, width=1.6609405)

. graph export histogramresidU1.png, replace
(file histogramresidU1.png written in PNG format)

.
. reg bwght faminc /* Ejercicio 1e: teorema FrischWaugh Etapa2 */

```

```

Source |      SS          df           MS       Number of obs    =
1,388
-----+-----
                                F(1, 1386)      =

```

```

16.65
Model | 6819.0527      1  6819.0527  Prob > F      =
0.0000
Residual | 567792.667    1,386  409.662819  R-squared     =
0.0119
-----+-----
0.0112                               Adj R-squared  =
20.24 Total | 574611.72    1,387  414.283864  Root MSE     =

```

```

-----
          bwght |      Coef.  Std. Err.      t    P>|t|     [95% Conf.
Interval]
-----+-----
          faminc |   .1183234   .0290016     4.08   0.000     .
0614317   .1752152
          _cons |   115.265   1.001901   115.05   0.000    113.2996
117.2304
-----

```

```

. predict residU2, residual /*Guardo los residuos U2 de la variable
bwght*/

```

```

. label variable residU2 "Residuos de la variable bwght"

```

```

. sum residU2, detail

```

Residuos de la variable bwght

```

-----
Percentiles      Smallest
1%      -55.11055    -94.92731
5%      -32.95606    -87.92731
10%     -24.15246    -83.51893      Obs          1,388
25%     -11.92156    -81.11054      Sum of Wgt.   1,388

50%      .8894544
                    Largest
75%      13.09365     50.29784      Mean          -9.17e-09
90%      24.04394     58.07269      Std. Dev.     20.23283
95%      30.07269     72.88946      Variance      409.3675
99%      43.32084     150.7062     Skewness     -.1436457
                    Kurtosis      6.112592

```

```

. histogram residU2
(bin=31, start=-94.927315, width=7.9236625)

```

```

. graph export histogramresidU2.png, replace
(file histogramresidU2.png written in PNG format)

```

```
.
. reg residU2 residU1 /* Ejercicio 1e: teorema FrischWaugh Etapa3*/
```

Source	SS	df	MS	Number of obs	=
1,388					
-----+				F(1, 1386)	=
25.63					
Model	10307.1562	1	10307.1562	Prob > F	=
0.0000					
Residual	557485.513	1,386	402.2262	R-squared	=
0.0182					
-----+				Adj R-squared	=
0.0174					
Total	567792.669	1,387	409.367462	Root MSE	=
20.056					

residU2	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
residU1	-.4634075	.0915438	-5.06	0.000	-.6429869
-.2838282					
_cons	-9.19e-09	.5383199	-0.00	1.000	-1.05601
1.05601					

```
. reg bwght cigs faminc /*Se compara esta salida con la anterior. El
coeficiente MCO de re
> sidU1 de la etapa3 del teorema FrischWaugh es igual al coeficiente
MCO de cigs del model
> o planteado por los investigadores */
```

Source	SS	df	MS	Number of obs	=
1,388					
-----+				F(2, 1385)	=
21.27					
Model	17126.2088	2	8563.10442	Prob > F	=
0.0000					
Residual	557485.511	1,385	402.516614	R-squared	=
0.0298					
-----+				Adj R-squared	=
0.0284					
Total	574611.72	1,387	414.283864	Root MSE	=
20.063					

	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
cigs	-.4634075	.0915768	-5.06	0.000	-.6430518
faminc	.0927647	.0291879	3.18	0.002	.
_cons	116.9741	1.048984	111.51	0.000	114.9164

```

.
.
. /*Fin del Punto 1*/
. clear all /*Limpiar variables*/

.
. /*Inicio del Punto 2*/
.
. use SALARIOS.dta /*Abrir base de datos del Punto2*/

.
. describe

```

Contains data from SALARIOS.dta

```

obs:      177
vars:      6
size:     2,478
27 Aug 2017 16:41

```

variable name	storage type	display format	value label	variable label
salary	int	%9.0g		1990 compensation, \$1000s
age	byte	%9.0g		in years
ceoten	byte	%9.0g		years as ceo with
company sales millions	float	%9.0g		1990 firm sales, millions
profits	int	%9.0g		1990 profits, millions
mktval	float	%9.0g		market value, end 1990, mills.

Sorted by:

. browse

. sum

Variable	Obs	Mean	Std. Dev.	Min
Max				

+				
5299 salary	177	865.8644	587.5893	100
86 age	177	56.42938	8.42189	33
37 ceoten	177	7.954802	7.150826	0
51300 sales	177	3529.463	6088.654	29
2700 profits	177	207.8305	404.4543	-463

+				
45400 mktval	177	3600.316	6442.276	387

```
.  
. corr salary sales /*Ejercicio2a: correlacion entre el salario del  
ejecutivo y las ventas  
> de la empresa*/  
(obs=177)
```

	salary	sales
-----+-----		
salary	1.0000	
sales	0.3802	1.0000

```
. #delimit ;  
delimiter now ;  
. graph twoway (scatter salary sales, msize(med) msymbol(o))  
> (lowess salary sales, bwidth(0.4) clstyle(p2)  
lwidth(medthick)),  
> title("Ejercicio 2a: Correlación salario y ventas")  
> xtitle("Sales", size(medlarge)) xscale(titlegap(*5))  
> ytitle("Salary", size(medlarge)) yscale(titlegap(*5))  
> legend(pos(4) ring(0) col(1)) legend(size(small))  
> legend(label(2 "Lowess"))  
> ;  
(note: named style med not found in class symbolsize, default  
attributes used)
```

```

. #delimit cr
delimiter now cr
. graph export corrsalarysales.png, replace
(file corrsalarysales.png written in PNG format)

.
. gen lsalary=ln(salary) /*Se crea variable logaritmo de salario*/
. label variable lsalary "Logaritmo del salario"
. gen lsales= ln(sales) /*Se crea variable logaritmo de las ventas*/
. label variable lsales "Logaritmo de las ventas"

.
. corr lsalary lsales /*Ejercicio2a: correlacion entre el logaritmo
del salario del ejecut
> ivo y el logaritmo de las ventas de la empresa*/
(obs=177)

```

	lsalary	lsales
lsalary	1.0000	
lsales	0.5300	1.0000

```

. #delimit ;
delimiter now ;
. graph twoway (scatter lsalary lsales, msize(med) msymbol(o))
> (lowess lsalary lsales, bwidth(0.4) clstyle(p4)
lwidth(medthick)),
> title("Ejercicio 2a: Correlación log(salario) y
log(ventas)")
> xtitle("Log(sales)", size(medlarge)) xscale(titlegap(*5))
> ytitle("Log(salary) ", size(medlarge)) yscale(titlegap(*5))
> legend(pos(4) ring(0) col(1)) legend(size(small))
> legend(label(2 "Lowess"))
> ;
(note: named style med not found in class symbolsize, default
attributes used)

```

```

. #delimit cr
delimiter now cr
. graph export corrlsalarylsales.png, replace
(file corrlsalarylsales.png written in PNG format)

```

```

.
. reg salary sales mktval /*Ejercicio2b*/

```

Source	SS	df	MS	Number of obs	=
177				F(2, 174)	=
18.80				Prob > F	=
Model	10796207.1	2	5398103.55	R-squared	=
0.0000				Adj R-squared	=
Residual	49969757.7	174	287182.515	Root MSE	=
0.1777					
0.1682					
Total	60765964.7	176	345261.163		
535.89					

salary	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
sales	.0164994	.0101116	1.63	0.105	-.0034579 .0364567
mktval	.0252906	.0095566	2.65	0.009	0.0064288 .0441524
_cons	716.5762	47.18752	15.19	0.000	809.7098 623.4426

. eststo m2b /*Guarda modelo. "M2b" abreviación de modelo del punto 2b*/

. gen lmktval=ln(mktval) /*Genero la variable lmktval*/

. reg lsalary lsales lmktval/*Ejercicio 2c*/

Source	SS	df	MS	Number of obs	=
177				F(2, 174)	=
37.13				Prob > F	=
Model	19.3365617	2	9.66828083	R-squared	=
0.0000				Adj R-squared	=
Residual	45.3096514	174	.260400295	Root MSE	=
0.2991					
0.2911					
Total	64.6462131	176	.367308029		
= .51029					

```

-----
      lsalary |      Coef.   Std. Err.      t    P>|t|     [95% Conf.
Interval]
-----+-----
      lsales |   .1621283   .0396703     4.09   0.000     .
0838315   .2404252
      lmktval |   .106708    .050124     2.13   0.035     .
0077787   .2056372
      _cons |   4.620917   .2544083    18.16   0.000    4.118794
5.123041
-----

```

```

. eststo m2c

```

```

. reg lsalary lsales lmktval profits /* Ejercicio 2d*/

```

```

      Source |      SS          df           MS       Number of obs   =
177
-----+-----
24.64
      Model |  19.3509799           3     6.45032663   F(3, 173)       =
0.0000
      Residual |  45.2952332        173     .261822157   Prob > F         =
0.2993
-----+-----
0.2872
      Total |  64.6462131        176     .367308029   R-squared        =
= .51169
      Root MSE
-----

```

```

-----
      lsalary |      Coef.   Std. Err.      t    P>|t|     [95% Conf.
Interval]
-----+-----
      lsales |   .1613683   .0399101     4.04   0.000     .
0825949   .2401416
      lmktval |   .0975286   .0636886     1.53   0.128    -.
0281782   .2232354
      profits |   .0000357   .000152     0.23   0.815    -.
0002643   .0003356
      _cons |   4.686924   .3797294    12.34   0.000    3.937425
5.436423
-----

```

```

. corr mktval profits

```

(obs=177)

	mktval	profits
mktval	1.0000	
profits	0.9181	1.0000

. eststo m2d

. esttab m2c m2d, ar2 /*Muestra los modelos. Ar2 es para ver el R2 también*/

	(1) lsalary	(2) lsalary
lsales	0.162*** (4.09)	0.161*** (4.04)
lmktval	0.107* (2.13)	0.0975 (1.53)
profits		0.0000357 (0.23)
_cons	4.621*** (18.16)	4.687*** (12.34)
N	177	177
adj. R-sq	0.291	0.287

t statistics in parentheses

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

.

.

. reg lsalary lsales lmktval ceoten /*Ejercicio 2e*/

Source	SS	df	MS	Number of obs	=
177					
26.91				F(3, 173)	=
0.0000	Model	3	6.85574779	Prob > F	=
0.3182	Residual	173	.254791732	R-squared	=
0.3063				Adj R-squared	=
	Total	176	.367308029	Root MSE	

= .50477

lsalary	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
lsales	.1628545	.0392421	4.15	0.000	.
0853995	.2403094				
lmktval	.109243	.0495947	2.20	0.029	.
0113545	.2071315				
ceoten	.0117054	.0053261	2.20	0.029	.
001193	.0222178				
_cons	4.503795	.2572344	17.51	0.000	3.996073
5.011517					

. eststo m2e

. esttab m2c m2d m2e, ar2 r2

	(1)	(2)	(3)
	lsalary	lsalary	lsalary
lsales	0.162*** (4.09)	0.161*** (4.04)	0.163*** (4.15)
lmktval	0.107* (2.13)	0.0975 (1.53)	0.109* (2.20)
profits		0.0000357 (0.23)	
ceoten			0.0117* (2.20)
_cons	4.621*** (18.16)	4.687*** (12.34)	4.504*** (17.51)
N	177	177	177
R-sq	0.299	0.299	0.318
adj. R-sq	0.291	0.287	0.306

t statistics in parentheses

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

.

```
. test ceoten=0
```

```
( 1) ceoten = 0
```

```
F( 1, 173) = 4.83  
Prob > F = 0.0293
```

```
. /*Ho: ceoten=0
```

```
> H1: ceoten≠0*/
```

```
.
```

```
. test lsales lmktval ceoten/*Ejercicio 2f*/
```

```
( 1) lsales = 0
```

```
( 2) lmktval = 0
```

```
( 3) ceoten = 0
```

```
F( 3, 173) = 26.91  
Prob > F = 0.0000
```

```
. /*Ho:lsales=lmktval=ceoten=0
```

```
> H1:lsales≠0 o lmktval≠0 o ceoten≠0*/
```

```
.
```

```
. test lsales=lmktval /*Ejercicio 2g, test F*/
```

```
( 1) lsales - lmktval = 0
```

```
F( 1, 173) = 0.42  
Prob > F = 0.5184
```

```
. reg lsalary lsales lmktval ceoten
```

Source	SS	df	MS	Number of obs	=	
177						
-----+-----					F(3, 173)	=
26.91						
Model	20.5672434	3	6.85574779	Prob > F	=	
0.0000						
Residual	44.0789697	173	.254791732	R-squared	=	
0.3182						
-----+-----					Adj R-squared	=
0.3063						
Total	64.6462131	176	.367308029	Root MSE		
=	.50477					

lsalary	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
---------	-------	-----------	---	------	----------------------

```
+-----
```

lsales		.1628545	.0392421	4.15	0.000	.
0853995		.2403094				
lmktval		.109243	.0495947	2.20	0.029	.
0113545		.2071315				
ceoten		.0117054	.0053261	2.20	0.029	.
001193		.0222178				
_cons		4.503795	.2572344	17.51	0.000	3.996073
5.011517						

```
. test lsales=lmktval
```

```
( 1)  lsales - lmktval = 0
```

```
      F( 1, 173) = 0.42
      Prob > F = 0.5184
```

```
. *Para la parte del test T, se hace
. ereturn list
```

```
scalars:
```

```
      e(N) = 177
      e(df_m) = 3
      e(df_r) = 173
      e(F) = 26.90726155283634
      e(r2) = .3181507838089451
      e(rmse) = .5047689891391008
      e(mss) = 20.56724335527951
      e(rss) = 44.07896970459617
      e(r2_a) = .3063268089617014
      e(ll) = -128.1223460712886
      e(ll_0) = -162.0131322260296
      e(rank) = 4
```

```
macros:
```

```
      e(cmdline) : "regress lsalary lsales lmktval ceoten"
      e(title) : "Linear regression"
      e(marginsok) : "XB default"
      e(vce) : "ols"
      e(depvar) : "lsalary"
      e(cmd) : "regress"
      e(properties) : "b V"
      e(predict) : "regres_p"
      e(model) : "ols"
      e(estat_cmd) : "regress_estat"
```

```
matrices:
```

```
      e(b) : 1 x 4
```


e(V) : 4 x 4

functions:

e(sample)

. mat A=e(V)

. matrix list A

symmetric A[4,4]

	lsales	lmktval	ceoten	_cons
lsales	.00153994			
lmktval	-.00143143	.00245963		
ceoten	1.760e-06	6.143e-06	.00002837	
_cons	-.0005576	-.00789795	-.00028384	.06616955

. scalar v=A[1,1]+A[2,2]-2*A[2,1] /*Calculamos V(b1-b2), la guardamos como v*/

. scalar s=sqrt(v) /*Calcula la SE(b1-b2)*/

. di s /*Muestra el número*/

.08283984

. matrix define B=e(b) /*Wxtrae el vector de coeficientes y lo convierte en matriz*/

. scalar d=B[1,1]-B[1,2] /*Diferencia entre b1 y b2, y lo llama d*/

. scalar estadisticot=d/s

. di estadisticot /*Esto muestra el valor del estadístico*/

.64716991

. *Concluyo sabiendo que el valor de tabla es 1.984

.

. /*Fin del Punto2*/

.

end of do-file

. exit, clear