

List 04: Prediction

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## Warning: package 'ggplot2' was built under R version 4.5.2	

sleep equation #1

For the dataset `sleep75` consider a regression `sleep ~ totwrk, age, south, male, smsa, yngkid, marr`.

Fitting results:

=====		
Dependent variable:		

	sleep	

totwrk	-0.169***	(0.018)
age	2.689*	(1.469)
south	101.568**	(41.837)
male	87.669**	(35.104)
smsa	-54.748*	(33.123)
yngkid	-13.962	(50.341)

marr	31.211 (42.233)
Constant	3450.913*** (80.726)

Observations	706
R2	0.131
Adjusted R2	0.123
Residual Std. Error	416.296
F Statistic	15.064***

Note: *p<0.1; **p<0.05; ***p<0.01

Consider individuals with the following characteristics:

	totwrk	age	south	male	smsa	yngkid	marr
1	2150	37	0	1	1	0	1
2	1950	28	1	1	0	1	0
3	2240	26	0	0	1	0	0

Evaluate the prediction of the dependent variable for each individual.

Round the answer to 2 decimal places.

The answer

	Prediction
1	3250.68
2	3371.46
3	3086.98

sleep equation #2

For the dataset `sleep75` consider a regression `sleep ~ totwrk, age, age^2, south, male`.

Fitting results:

Dependent variable:	
sleep	
totwrk	-0.167*** (0.018)
age	-6.255

	(11.191)
I(age2)	0.109 (0.134)
south	114.547*** (40.637)
male	90.457*** (34.257)
Constant	3613.995*** (218.433)

Observations	706
R2	0.128
Adjusted R2	0.121
Residual Std. Error	416.558
F Statistic	20.488***

Note: *p<0.1; **p<0.05; ***p<0.01

Consider individuals with the following characteristics:

	totwrk	age	south	male
1	2160	32	1	0
2	1720	24	0	1
3	2390	44	0	1

Evaluate the prediction of the dependent variable for each individual.

Round the answer to 2 decimal places.

The answer

	Prediction
1	3278.46
2	3329.25
3	3240.11

wage equation #1

For the dataset wage2 consider a regression log(wage) age, IQ, south, married, urban.

Fitting results:

Dependent variable:

log(wage)	
age	0.021*** (0.004)
IQ	0.008*** (0.001)
south	-0.099*** (0.027)
married	0.201*** (0.040)
urban	0.175*** (0.028)
Constant	4.974*** (0.165)

Observations	935
R2	0.200
Adjusted R2	0.195
Residual Std. Error	0.378
F Statistic	46.346***

Note: *p<0.1; **p<0.05; ***p<0.01

Consider individuals with the following characteristics:

age	IQ	south	married	urban
1 36	105	1	1	1
2 29	123	0	1	0
3 25	112	1	0	1

Evaluate the prediction of the dependent variable for each individual.

Round the answer to 2 decimal places.

The answer

Prediction
1 969.95
2 897.93
3 665.07

wage equation #2

For the dataset `wage1` consider a regression `log(wage) ~ exper, exper2, female, married, smsa`.

Fitting results:

Dependent variable:	

log(wage)	

exper	0.037*** (0.006)
I(exper2)	-0.001*** (0.0001)
female	-0.363*** (0.040)
married	0.144*** (0.045)
smsa	0.273*** (0.044)
Constant	1.250*** (0.061)

Observations	526
R2	0.293
Adjusted R2	0.287
Residual Std. Error	0.449
F Statistic	43.168***

Note: *p<0.1; **p<0.05; ***p<0.01

Consider individuals with the following characteristics:

exper female married smsa				
1	5	1	1	1
2	26	0	0	1
3	38	1	1	0

Evaluate the prediction of the dependent variable for each individual.

Round the answer to 2 decimal places.

The answer

Prediction	

1 4.35
2 7.10
3 3.74

output equation #1

For the dataset Labour consider a regression $\log(\text{output}) \sim \log(\text{capital}), \log(\text{labour})$.

Fitting results:

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Dependent variable:

 $\log(\text{output})$

$\log(\text{capital})$	0.208*** (0.017)
$\log(\text{labour})$	0.715*** (0.023)
Constant	-1.711*** (0.097)

Observations	569
R2	0.838
Adjusted R2	0.837
Residual Std. Error	0.478
F Statistic	1462.078***

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Note: *p<0.1; **p<0.05; ***p<0.01

Consider firms with the following characteristics:

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capital	labour

1 2.970	85
2 10.450	60
3 3.850	105

Evaluate the prediction of the dependent variable for each individual.

Round the answer to 2 decimal places.

The answer

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Prediction

1 5.42

2	5.49
3	6.65

output equation #2

For the dataset Labour consider a regression $\log(\text{output}) \sim \log(\text{capital}), \log(\text{labour}), \log^2(\text{capital}), \log^2(\text{labour})$.

Fitting results:

Dependent variable:	
$\log(\text{output})$	
$\log(\text{capital})$	0.183*** (0.017)
$\log(\text{labour})$	0.515*** (0.083)
$I(\log(\text{capital})^2)$	0.023*** (0.005)
$I(\log(\text{labour})^2)$	0.020** (0.010)
Constant	-1.304*** (0.189)
<hr/>	
Observations	569
R2	0.855
Adjusted R2	0.854
Residual Std. Error	0.452
F Statistic	834.240***

Note: *p<0.1; **p<0.05; ***p<0.01

Consider firms with the following characteristics:

	capital	labour
1	22.140	407
2	7.320	197
3	0.670	31

Evaluate the prediction of the dependent variable for each individual.

Round the answer to 2 decimal places.

The answer

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Prediction

1 27.37

2 11.46

3 1.89
