

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`, `age2`, `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 $\log(\text{wage})$ on `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 $\log(\text{output}) = \beta_0 + \beta_1 \log(\text{capital}) + \beta_2 \log(\text{labour})$.

Fitting results:

```

=====
                        Dependent variable:
                        -----
                        log(output)
                        -----
log(capital)           0.208***
                        (0.017)

log(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***
=====

```

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

Consider firms with the following characteristics:

```

=====
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

```

=====
Prediction
-----
1    5.42

```

```
2    5.49
3    6.65
-----
```

output equation #2

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

Fitting results:

```
=====
                        Dependent variable:
                        -----
                        log(output)
-----
log(capital)           0.183***
                        (0.017)

log(labour)            0.515***
                        (0.083)

I(log(capital)2)       0.023***
                        (0.005)

I(log(labour)2)        0.020**
                        (0.010)

Constant               -1.304***
                        (0.189)

-----

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

```
=====
Prediction
-----
1  27.37
2  11.46
3   1.89
-----
```