List 01. Linear Regression Fitting

Nikita V. Artamonov

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Contents

1 Regression fitting

#**1**. For the dataset `sleep75` consider a regression

`sleep on totwrk & age`.

1. write down the specification
2. Evaluate coefficients of the fitted model via regression specification (.ols method from statsmodels)

#**2**. For the dataset `sleep75` consider a regression

`sleep on totwrk, age,` $\texttt{age}^2$.

1. write down the specification
2. Evaluate coefficients of the fitted model via regression specification (.ols method from statsmodels)

#**3**. For the dataset `sleep75` consider a regression

`sleep/60 on totwrk/60, age, smsa, south`.

1. write down the specification
2. Evaluate coefficients of the fitted model via regression specification (.ols method from statsmodels)

#**4**. For the dataset `Labour` consider a regression

`log(output) on log(capital), log(labour)`.

1. write down the specification
2. Evaluate coefficients of the fitted model via regression specification (.ols method from statsmodels)

Data selection & Regression fitting

#**5**. For the dataset `sleep75` consider a regression

`sleep on totwrk, age, south, male`.

Fit the regression only for city dwellers (smsa==1).

#**6**. For the dataset `sleep75` consider a regression

`sleep on totwrk, age, south, smsa`.

Fit the regression only for men (male==1).

#**7**. For the dataset `sleep75` consider a regression

`sleep on totwrk, age, south, smsa`.

Fit the regression only for women (male==0).

2 Coefficient interpretation

#**1**. For the dataset `sleep75` consider a regression

`sleep on totwrk, age`.

Fit the regression and give the interpretation of its coefficients.

#**2**. For the dataset `sleep75` consider a regression

`sleep on totwrk, age, male, smsa, south`.

Fit the regression and give the interpretation of its coefficients.

#**3**. For the dataset `wage2` consider a regression

`log(wage) on exper, IQ`.

Fit the regression and give the interpretation of its coefficients.

#**4**. For the dataset `wage2` consider a regression

`log(wage) on exper, IQ, south, urban, married`.

Fit the regression and give the interpretation of its coefficients.

#**5**. For the dataset `Labour` consider a regression

`log(output) on log(capital), log(labour)`.

Fit the regression and give the interpretation of its coefficients.

#**6**. For the dataset `Labour` consider a regression

`log(output) on log(capital), log(labour), log(wage)`.

Fit the regression and give the interpretation of its coefficients.

3 Goodness-of-fit, Fitted values, Residuals

#**1**. For the dataset `sleep75` consider a regression

`sleep on totwrk, age`.

Fit the regression and calculate:

1. TSS, ESS, RSS
2. R^2, R^2_{adj}
3. Fitted values, dependent variable, residuals for observations with indices [0, 3, 78, 197, 401, 561]

Give the interpretation for obtained values (if possible)

#**2**. For the dataset `wage2` consider a regression

`log(wage) on age, IQ, urban, married, south`.

Fit the regression and calculate:

1. TSS, ESS, RSS
2. R^2, R^2_{adj}
3. Fitted values, dependent variable, residuals for observations with indices [5, 33, 82, 149, 392, 603]

Give the interpretation for obtained values (if possible)

#**3**. For the dataset `wage2` consider a regression

`log(wage) on age, IQ, urban, married, south`.

Fit the regression and calculate:

1. TSS, ESS, RSS
2. R^2, R^2_{adj}
3. Fitted values, dependent variable, residuals for observations with indices [7, 29, 43, 86, 124, 138]

Give the interpretation for obtained values (if possible)