```
Python 3.7.4 (default, Aug  9 2019, 18:34:13) [MSC v.1915 64 bit (AMD64)]
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IPython 7.8.0 -- An enhanced Interactive Python.

In [1]: runfile('C:/Users/claire.loupias/Desktop/exercice-3.3.py', wdir='C:/Users/
claire.loupias/Desktop')
                            OLS Regression Results
==============================================================================
Dep. Variable:                 math10   R-squared:                       0.180
Model:                            OLS   Adj. R-squared:                  0.176
Method:                 Least Squares   F-statistic:                     44.43
Date:                Wed, 25 Mar 2020   Prob (F-statistic):           3.59e-18
Time:                        14:33:43   Log-Likelihood:                -1497.1
No. Observations:                 408   AIC:                             3000.
Df Residuals:                     405   BIC:                             3012.
Df Model:                           2
Covariance Type:            nonrobust
==============================================================================
                 coef    std err          t      P>|t|      [0.025      0.975]
------------------------------------------------------------------------------
Intercept     -20.3608     25.073     -0.812      0.417     -69.650      28.928
logged_expend   6.2297      2.973      2.096      0.037       0.386      12.073
lnchprg        -0.3046      0.035     -8.614      0.000      -0.374      -0.235
==============================================================================
Omnibus:                       52.915   Durbin-Watson:                   1.903
Prob(Omnibus):                  0.000   Jarque-Bera (JB):               83.720
Skew:                           0.816   Prob(JB):                     6.61e-19
Kurtosis:                       4.504   Cond. No.                     1.58e+03
==============================================================================

Warnings:
[1] Standard Errors assume that the covariance matrix of the errors is correctly
specified.
[2] The condition number is large, 1.58e+03. This might indicate that there are
strong multicollinearity or other numerical problems.
                            OLS Regression Results
==============================================================================
Dep. Variable:                 math10   R-squared:                       0.030
Model:                            OLS   Adj. R-squared:                  0.027
Method:                 Least Squares   F-statistic:                     12.41
Date:                Wed, 25 Mar 2020   Prob (F-statistic):           0.000475
Time:                        14:33:43   Log-Likelihood:                -1531.4
No. Observations:                 408   AIC:                             3067.
Df Residuals:                     406   BIC:                             3075.
Df Model:                           1
Covariance Type:            nonrobust
==============================================================================
                 coef    std err          t      P>|t|      [0.025      0.975]
------------------------------------------------------------------------------
Intercept     -69.3412     26.530     -2.614      0.009    -121.495     -17.188
logged_expend  11.1644      3.169      3.523      0.000       4.935      17.394
==============================================================================
Omnibus:                       28.397   Durbin-Watson:                   1.615
Prob(Omnibus):                  0.000   Jarque-Bera (JB):               34.609
Skew:                           0.591   Prob(JB):                     3.05e-08
Kurtosis:                       3.800   Cond. No.                         440.
==============================================================================
```

```
Warnings:
[1] Standard Errors assume that the covariance matrix of the errors is correctly
specified.
La corrélation entre log(expend) et lnchprg est :  -0.1927042307181885
```

In [**2**]: